

ANIMAL SHELTER

REQUEST FOR PROPOSAL

BID # 2011-02

REVISED (5-18-11)

BEAVER COUNTY, ON BEHALF OF THE COUNTY, MILFORD AND BEAVER CITY AND MINERSVILLE TOWN,
IS ACCEPTING BIDS for the construction of an Animal Shelter.

1. BID OPENING DATE: MAY 11, 2011
BID CLOSING DATE: **MAY 31, 2011. 5:00 P.M.** (this is the extended deadline)
BIDS ACCEPTED AT: BEAVER COUNTY CLERK/AUDITORS OFFICE
105 EAST CENTER PO BOX 392
BEAVER, UTAH 84713
BID COPIES: SUBMIT 8 SEALED COPIES OF YOUR BID.
2. QUESTIONS SHOULD BE DIRECTED TO SCOTT ALBRECHT, (435)438-6490.
3. PROPOSER REQUIREMENTS
 - 3.1 All proposers must be a licensed contractor. License must be presented with the bid.
 - ~~3.2 Proof of a performance bond may be required by the successful bidder.~~
 - 3.3 Liability insurance shall be presented as part of this bid.
 - 3.4 All proposals must prove to be responsible and responsive according to this RFP.
 - 3.5 All proposals are required to meet all conditions/specifications in this RFP.
 - 3.6 If conditions/specifications are not met, the proposer must document such discrepancies in their bid.
 - 3.7 Proposers shall submit the number of working days it will take to complete the Scope of Work.
4. SCOPE OF WORK

The project includes the excavation and construction of footings, stem wall, foundation, plumbing, electrical, kennels, interior partitions, and CMU building erection for a 68'4"x30'x10' Animal Shelter according to the specification outlined in this RFP.
5. BID ALTERNATES
 - 5.1 The footing, foundation, and cost of a pre-manufactured steel building.
 - 5.1.1 Footings, Foundation, Interior Slab and Building plans must be certified engineer plans specific to the steel building specifications. (Including a minimal frost wall of 30" or equivalent)
 - 5.1.2 Insulation package
 - 5.1.3 Interior of the structure shall be lined with a minimum of 26 gauge steel.
 - 5.1.4 This alternate proposal will include all of the interior structures as outlined in the original bid per this RFP.

Performance Bond will NOT
be required

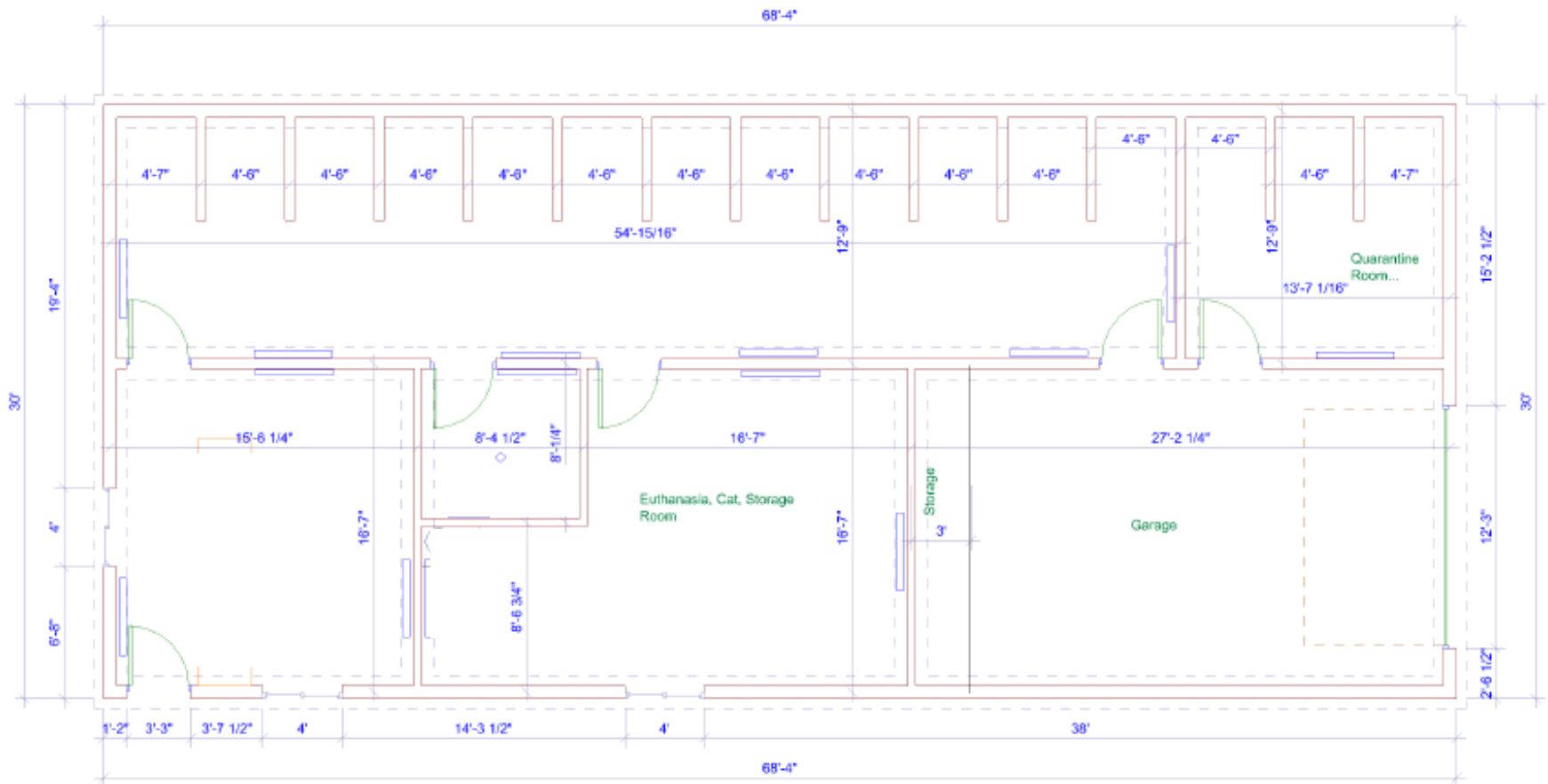
- 5.1.5 Steel Building shall be engineered with the same specifications for Snow Live Load, Roof Dead Load, Wind Loading, and Soil Bearing Pressures, as the original bid.
- 5.2 8" CMU interior walls for kennel construction instead of the 4' walls as indicated on *Page 3, Key Note 4* of the *Animal Shelter Plans* and/or *page 5 of the Animal Shelter Calculations* document per this RFP.
- 5.3 Propane Heaters instead of the Ceiling Mount Electrical 220 v Heater.
- ~~5.4 A line item showing the increased cost (if any) in the event a performance bond is required.~~
- 5.5 ~~Shingle Roofing~~
- 5.6 Garage Door Opener and Outlet
- 5.7 Insulation in Roofing of entire building

6. OTHER BUILDING SPECIFICATIONS

- 6.1 Interior Walls shall be stick built using standard 2x4 framing
 - 6.1.1 Interior Stick Walls Shall be insulated
 - 6.1.2 Interior Stick Built walls shall be sheet rocked
 - 6.1.3 Interior Stick Built walls shall be finished with an Orange Peel paint
- 6.2 All of the Ceiling shall be sheet rocked
 - 6.2.1 Insulation shall be installed in the roof over the office area only
 - 6.2.2 Ceiling shall be taped and finished with a stomp ceiling texture
- 6.3 All interior doors will be residential 3x0x6x8
- 6.4 Exterior Door will be metal door and frame
- 6.5 Concrete shall be sealed in the Kennel area with Penetration Sealer Dayton Superior J29 or equivalent.
- 6.6 For the purposes of this bid, Stub Sewer, Electrical Conduit and Main Water Lines out of the building 5'
- 6.7 Gray, unpainted block shall be used
- 6.8 Metal roofing shall be used
- 6.9 5'x5'x3" concrete slab in front of entrance door
- 6.10 Non-insulated, Manual Garage Door
- 6.11 Special Inspector referenced in this RFP is the Beaver County building inspector, Craig Davis or Kyle Blackner
- 6.12 Bathroom will require a vent fan (not shown on electrical plans)(include cost of all wiring and switches needed)
- 6.13 Kennel area will require two vent fans (not shown on electrical plans) (include cost of all wiring and switches needed)

7. PROJECT UNKNOWNNS

- 7.1 It is undecided whether the facility will be connected to City water or a well system.
- 7.2 The exact location and depth of the sewer line is undetermined.
- 7.3 The kennel doors and the kennel enclosures are undetermined.



GENERAL:

UNLESS NOTED OTHERWISE, ALL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE 2009 INTERNATIONAL BUILDING CODE. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY ALL EXISTING CONDITIONS AT THE JOB SITE, AND TO FULLY COORDINATE ALL DIMENSIONS AND CONDITIONS OF DETAILS WITH OTHER DISCIPLINES. ANY FIELD CONDITIONS REQUIRING CONSTRUCTION THAT IS DIFFERENT FROM THAT SHOWN ON THE PLANS SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT. ANY CONFLICTING DETAILS SHOWN IN THE DRAWINGS SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT PRIOR TO THE CONSTRUCTION OF SAID DETAIL. DO NOT SCALE DRAWINGS. ANY QUESTIONS REGARDING THE CONSTRUCTION DOCUMENTS SHALL BE SUBMITTED TO THE ARCHITECT IN THE FORM OF A WRITTEN REQUEST FOR INFORMATION.

ALL SUPPORT OF CONSTRUCTION LOADS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. ALL SHORING AND BRACING REQUIRED FOR THE PROTECTION OF LIFE AND PROPERTY DURING THE CONSTRUCTION PROCESS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. ALL PROCEDURES OF SOIL EXCAVATION, BACK FILL, AND SUPPORT OF ADJACENT PROPERTY DURING EARTHWORK SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR.

ALL DIMENSIONS INDICATED ON PLANS SHALL BE TO FACE OF STUDS, FACE OF CONCRETE BLOCK, FACE OF ROUGH CONCRETE, CENTERLINE OF COLUMNS, BOTTOM OF METAL DECK, AND TOP OF SLAB, UNLESS NOTED OTHERWISE. REFER TO ARCHITECTURAL DRAWINGS FOR ALL DIMENSIONS NOT INDICATED ON STRUCTURAL DRAWINGS. THE FOLLOWING DESIGN CRITERIA SHALL BE ENFORCED;

ROOF DEAD LOAD: 15 PSF.
ROOF SNOW LOAD:
P_r = 30 PSF
C_e = 1.0
I = 1.0
C_t = 1.0
WIND FORCES:
BASIC WIND SPEED: 90 MPH (3 SECOND GUST), 70 MPH (FASTEST MILE)
WIND EXPOSURE TYPE: C
WIND IMPORTANCE FACTOR: 1.0
SEISMIC USE GROUP I
S₀₈ = 0.61
S₀₁ = 0.31
SITE CLASS D
SEISMIC DESIGN CATEGORY D
BASIC LFPS = SPECIALLY INSPECTED MASONRY SHEAR WALL
R=5.0
W WEIGHT OF STRUCTURE:
DESIGN BASE SHEAR = 0.123W (ULTIMATE)
0.086W (SERVICE)
DESIGN PROCEDURE: EQUIVALENT LATERAL FORCE

FOUNDATIONS:

MAXIMUM ALLOWABLE SOIL PRESSURE: = 1500 PSF. PER IBC 2009 TABLE 1804.2

ALL FOOTING DEPTHS INDICATED ON PLANS ARE MINIMUM DEPTHS. FOOTINGS MAY BE PLACED IN NEAT EXCAVATED TRENCHES. TRENCH SHALL BE APPROVED BY INSPECTOR PRIOR TO PLACEMENT OF CONCRETE. AT LOCATIONS WHERE STRUCTURAL FILL IS REQUIRED, FILL SHALL BE PLACED IN 6" LIFTS & COMPACTED AT OPTIMUM MOISTURE CONTENT. REFER TO SOILS INVESTIGATION FOR DEPTH AND EXTENT OF STRUCTURAL FILL.

CONCRETE:

ALL CONCRETE MATERIALS SHALL COMPLY WITH THE STANDARDS SPECIFIED IN THE LATEST EDITION OF THE ACI 318 BUILDING CODE. EACH MIX DESIGN SHALL BE REVIEWED BY AN APPROVED INDEPENDENT LABORATORY, AND SHALL BE SUBMITTED TO THE ENGINEER AT LEAST 2 WEEKS PRIOR TO THE PLACEMENT OF CONCRETE. CONTRACTOR SHALL INFORM THE ENGINEER AT LEAST 2 DAYS PRIOR TO PLACING ANY CONCRETE SO THAT THE ENGINEER MAY HAVE THE OPPORTUNITY TO REVIEW THE WORK.

CONCRETE TESTING SHALL BE PERFORMED BY AN APPROVED INDEPENDENT TESTING LABORATORY. THE TESTING AGENCY SHALL TEST (4) CYLINDERS FROM EACH CLASS OF CONCRETE USED EACH DAY. A MINIMUM OF (1) SAMPLE MUST BE TAKEN FROM EACH 50 CUBIC YARDS OF CONCRETE.

| LOCATION | SPECIAL INSPECT. | SLUMP (MAX) | AGGREGATE (MAX SIZE) | COMPRESSIVE STRENGTH (PSI) |
|----------|------------------|-------------|----------------------|----------------------------|
|----------|------------------|-------------|----------------------|----------------------------|

| | | | | |
|---------------|----|--------|----------|--------------------------------|
| FOOTINGS | NO | 5 | 1" DIA | 3000 (2500 WAS USED IN DESIGN) |
| STEM WALLS | NO | 5 | 1" DIA | 3000 (2500 WAS USED IN DESIGN) |
| SLAB ON GRADE | NO | 3-1/2" | 3/4" DIA | 4500 (2500 WAS USED IN DESIGN) |

ANY CONCRETE THAT FAILS TO MEET SPECIFICATIONS SHALL BE REMOVED AND REPLACED AT THE EXPENSE OF THE CONTRACTOR.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CONSTRUCTION, DESIGN, PLACEMENT AND REMOVAL OF ALL FORMWORK. ALL SHORING DURING PLACEMENT OF CONCRETE IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR.

CONCRETE SHALL BE SPECIALLY INSPECTED PER IBC 2009, TABLE 1704.4

CONCRETE REINFORCING:

ALL REINFORCING BARS SHALL CONFORM TO ASTM A-615 GRADE 60, F_y=60,000 PSI MIN., UNLESS NOTED OTHERWISE. BARS SHALL BE TIED SECURE PRIOR TO PLACEMENT OF CONCRETE TO MAINTAIN PROPER PLACEMENT AFTER CONCRETE IS IN PLACE. LAP ALL BARS 40 DIAMETERS UNLESS NOTED OTHERWISE. SPLICE BARS ONLY WHERE SHOWN ON PLANS.

MAINTAIN THE FOLLOWING CONCRETE COVERAGE FOR CONCRETE REINFORCING:

UNFORMED SURFACES IN CONTACT WITH EARTH.....3"
FORMED SURFACES IN CONTACT WITH EARTH.....2"
FORMED SURFACES EXPOSED TO OUTSIDE WEATHER.....2"
SLABS AND WALLS NOT EXPOSED TO WEATHER.....1 ½"
CLEAR DISTANCE BETWEEN BARS.....2" U.N.O.

SHOP DRAWINGS OF ALL BARS AND LOCATIONS SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW PRIOR TO FABRICATION. NORMAL WEIGHT CONCRETE SHALL HAVE A UNIT WEIGHT OF POUNDS PER CUBIC FOOT. USE OF CALCIUM CHLORIDE IS NOT PERMITTED IN ANY CONCRETE MIXES. ALL OTHER ADDITIVES AND ADMIXTURES MUST HAVE THE WRITTEN APPROVAL OF THE ENGINEER. THE ENGINEER SHALL HAVE 10 BUSINESS DAYS TO REVIEW SHOP DRAWINGS.

SHEATHING:

SHEATHING SHALL BE A.P.A. RATED, SEE PLAN FOR SPAN RATING AND THICKNESS.

SHEATHING INSTALLATION:

ROOF AND FLOOR SHEATHING SHALL BE LAID WITH THE FACE GRAIN PERPENDICULAR TO THE FRAMING MEMBERS U.N.O. AND END JOINTS SHALL BE STAGGERED. WALL SHEATHING MAY BE APPLIED HORIZONTALLY OR VERTICALLY.

ALL NAILS SHALL BE COMMON WIRE NAILS U.N.O. EQUIVALENT PNEUMATIC DRIVEN NAILS MAY BE USED IF FASTENER MANUFACTURER HAS CURRENT I.C.C. APPROVAL. FASTENERS TO BE USED SHALL BE EQUIVALENT IN LATERAL AND WITHDRAWAL STRENGTH TO THE SIZE COMMON NAIL SPECIFIED.

ROOF SHEATHING:

EDGE BLOCKING OF UNSUPPORTED EDGES OF SHEATHING AS NOTED ON PLANS. PLY CLIPS OR APPROVED EQUAL CONNECTOR SHALL BE INSTALLED AT MID SPAN BETWEEN EACH SUPPORT WHEN RAFTER SPACING EXCEEDS 16" AND EDGE BLOCKING IS NOT SPECIFIED.

TYPICAL NAILING SHALL BE 10d @ 6" O.C. AT SUPPORTED EDGES AND OVER SHEAR WALLS AND 8d AT 12" O.C. AT INTERMEDIATE SUPPORTS, U.N.O.

ROUGH CARPENTRY:

FRAMING LUMBER SHALL MEET THE FOLLOWING MINIMUM STANDARD U.N.O.

| USE | SPECIES | GRADE |
|-----|---------|-------|
|-----|---------|-------|

| | | |
|-------------------|------|---------------------|
| SILL PLATES 2 x 4 | D.F. | STANDARD OR BETTER. |
| 2 x 6, 2 x 8 | D.F. | NO. 2 OR BETTER. |

ALL SILL PLATES IN CONTACT WITH CONCRETE OR MASONRY, SHALL BE PRESSURE TREATED OR CALIFORNIA REDWOOD.

| HORIZONTAL FRAMING LUMBER: (U.N.O.) | | |
|-------------------------------------|------|-------|
| 4x4 AND SMALLER | D.F. | NO. 2 |
| 2x ROOF JOISTS & RAFTERS | D.F. | NO. 2 |
| 2x FLOOR JOISTS | D.F. | NO. 2 |
| 3x LEDGERS | D.F. | NO. 1 |
| 4x HEADERS & BEAMS | D.F. | NO. 1 |
| 6x6 & LARGER BEAMS | D.F. | NO. 1 |

| VERTICAL FRAMING LUMBER: (U.N.O.) | | |
|-----------------------------------|------|---------------------|
| ALL STUDS | D.F. | STUD GRADE |
| ALL POSTS | D.F. | NO. 2 |
| ALL OTHER LUMBER U.N.O | D.F. | STANDARD OR BETTER. |

PROVIDE A MINIMUM OF (2) STUDS UNDER ALL BEAM BEARING LOCATIONS UNO. PROVIDE A MINIMUM OF (3) STUDS UNDER ALL GIRDER TRUSS BEARING LOCATIONS UNO. WHERE POSTS OR MULTIPLE STUDS UNDER BEAMS OR HEADERS ARE IDENTIFIED ON DRAWINGS, THOSE POSTS OR MULTIPLE STUDS SHALL BE CARRIED TO THE FOUNDATION. BLOCK JOISTS AT ALL SUPPORTS. DOUBLE JOISTS UNDER PARALLEL PARTITIONS. BLOCK UNDER PERPENDICULAR PARTITIONS AT 32" O.C.

JOISTS HANGERS AND OTHER METAL FRAMING ACCESSORIES ARE REFFERD TO ON PLANS BY PARTICULAR TYPE AS MANUFACTURED BY SIMPSON COMPANY, SAN LEANDRO CALIFORNIA. ACCESSORIES OF OTHER MANUFACTURER WITH EQUIVALENT LOAD CARRYING CHARACTERISTICS MAY BE USED, WHEN APPROVED BY ENGINEER.

BOLTS: HOLES IN WOOD 1/16" OVERSIZE MAX. USE WASHERS AGAINST WOOD. RETIGHTEN ALL BOLTS BEFORE CLOSING IN. PRE-DRILL HOLES FOR LAG BOLTS AND TURN BOLTS INTO HOLES, DO NOT DRIVE-IN. FIRE STOPPING, BACKING FOR INTERIOR FINISHES, NON-BEARING WALLS AND OTHER NON-STRUCTURAL FRAMING IS NOT NECESSARILY SHOWN ON THE STRUCTURAL DRAWINGS.
SEE FASTENING SCHEDULE (U.N.O.) PER IBC 2009 TABLE 2304.91.

MASONRY:

CONCRETE MASONRY UNITS: ALL CONCRETE MASONRY UNITS SHALL BE MEDIUM WEIGHT CONCRETE UNITS GRADE "N" PER ASTM C-90 AND C-331, f_m=1500 PSI. MINIMUM UNIT STRENGTH OF CONCRETE UNITS TO BE 1900 PSI. MORTAR SHALL BE TYPE "S" 1800 PSI AT 28 DAYS, GROUT SHALL BE OF FLUID CONSISTENCY WITH A SLUMP OF 8" MIN., AND SHALL DEVELOP A COMPRESSIVE STRESS AT 28 DAYS OF 2000 PSI MIN. MINIMUM WALL REINFORCING UNLESS NOTED OTHERWISE SHALL BE: #5 @ 32" O.C. VERTICAL AND #5 @ 48" O.C. HORIZONTAL. PROVIDE ONE #5 VERTICAL BAR @ CORNERS. PROVIDE (2)-#5 VERTICAL BARS @ JAMBS. LAP ALL MASONRY WALL REINFORCING 40 DIAMETERS MIN., UNLESS NOTED OTHERWISE. REINFORCNG SHALL BE PLACED IN FULLY GROUTED CELLS.

MASONRY SHALL BE SPECIALLY INSPECTED PER IBC 2009, LEVEL 1 SPECIAL INSPECTION TABLE 1704.5.1

QUALITY ASSURANCE PLAN**MASONRY**

QUALITY ASSURANCE:

THE QUALITY ASSURANCE TO BE PROVIDED IS TO BE LEVEL 1 PER IBC 2009 TABLE 1708.1.2 SUMMARIZED BELOW:

- CERTIFICATES OF COMPLIANCE USED IN MASONRY CONSTRUCTION.
- VERIFICATION OF F/M PRIOR TO CONSTRUCTION.
- CERTIFIED MILL TEST REPORTS SHALL BE PROVIDED FOR EACH SHIPMENT OF REINFORCING STEEL USED IN MASONRY CONSTRUCTION.
- PROVIDE A WRITTEN CONTRACTOR'S STATEMENT OF RESPONSIBILITY AS LISTED BELOW.
- PROVIDE SPECIAL INSPECTIONS OF THE MASONRY CONSTRUCTION AS LISTED BELOW.

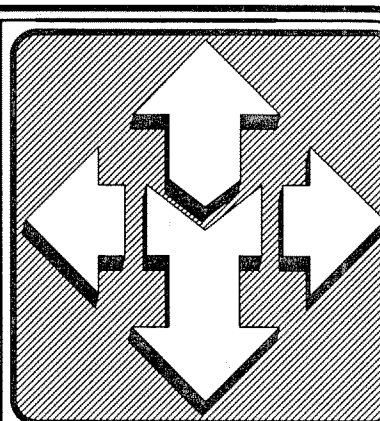
SPECIAL INSPECTION:

- AN APPROVED SPECIAL INSPECTION AGENCY SHALL BE RETAINED BY THE CONTRACTOR TO PERFORM A LEVEL 1 SPECIAL INSPECTIONS PER IBC 2009 TABLE 1704.5.1.

WRITTEN CONTRACTOR'S STATEMENT OF RESPONSIBILITY:

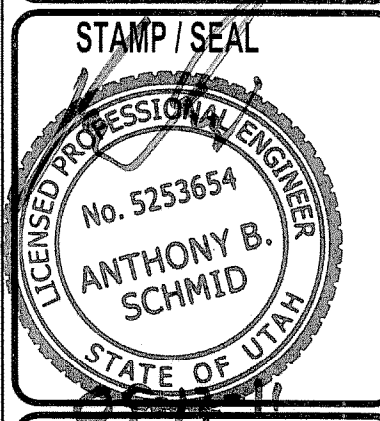
AS PART OF THE QUALITY ASSURANCE AND SPECIAL INSPECTION PLAN, THE CONTRACTOR SHALL SUBMIT TO THE BUILDING OFFICIAL AND THE OWNER A WRITTEN CONTRACTOR'S STATEMENT OF RESPONSIBILITY CONTAINING THE FOLLOWING ITEMS:

- ACKNOWLEDGMENT AND AWARENESS OF THE SPECIAL INSPECTION REQUIREMENTS.
- ACKNOWLEDGMENT THAT CONTROL WILL BE EXERCISED TO OBTAIN CONFORMANCE WITH THE CONSTRUCTION DOCUMENTS APPROVED BY THE BUILDING OFFICIAL.
- PROCEDURES FOR EXERCISING CONTROL WITHIN THE CONTRACTOR'S ORGANIZATION, THE METHOD AND FREQUENCY OF REPORTING AND THE DISTRIBUTION OF REPORTS.
- IDENTIFICATION AND QUALIFICATIONS OF THE PERSON(S) EXERCISING SUCH CONTROL AND THEIR POSITION(S) IN THE ORGANIZATION.



McNEIL ENGINEERING
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BEAVER ANIMAL SHELTER

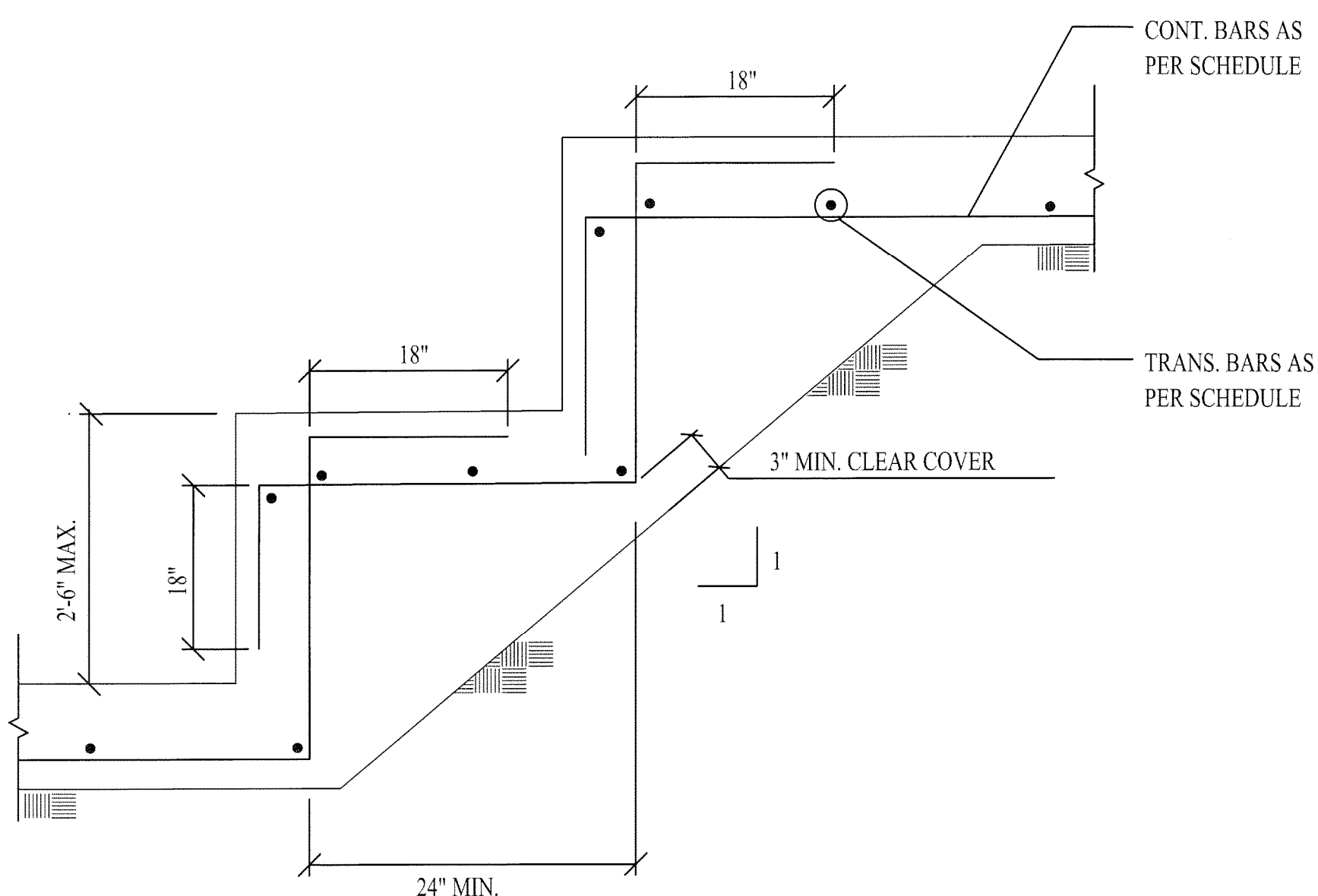
BEAVER, UTAH

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DATE: 05-11-11
PROJECT NO: 11294
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DRAWN BY: ABS
CHECKED BY: ABS

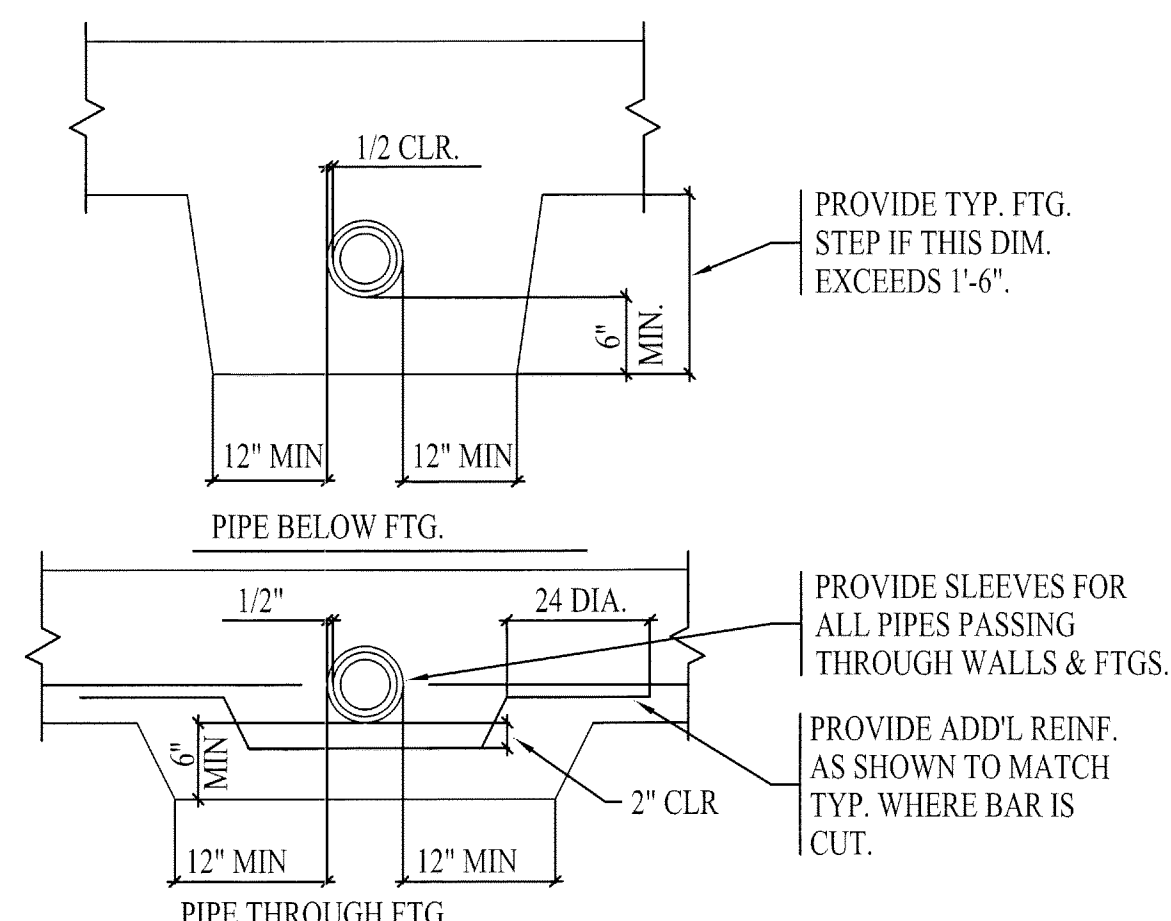
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GENERAL
STRUCTURAL
NOTES

SHEET NO.
S0.00
SHEET OF 1-5



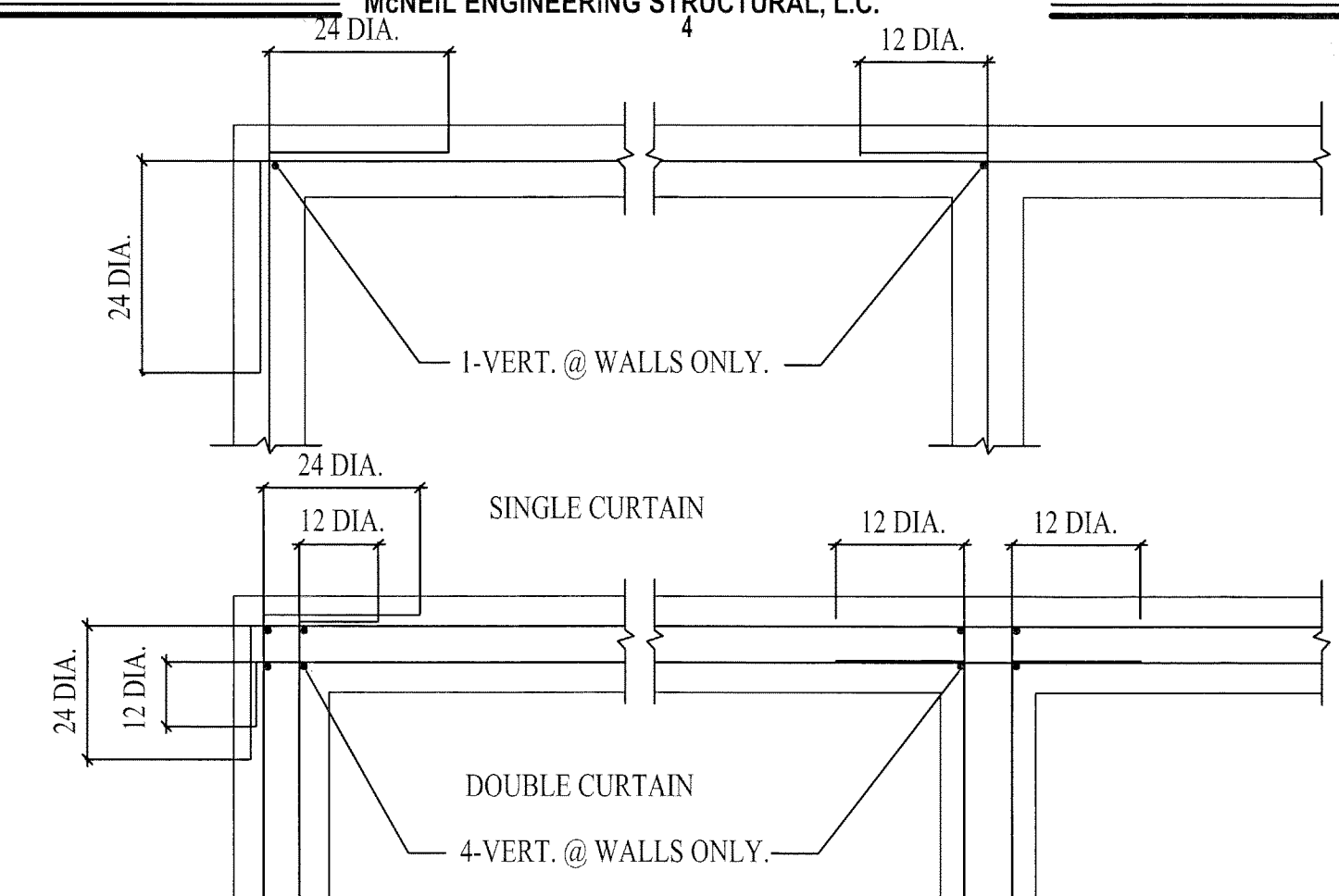
1-C
S0.01
NTS

STEPPED FOOTING



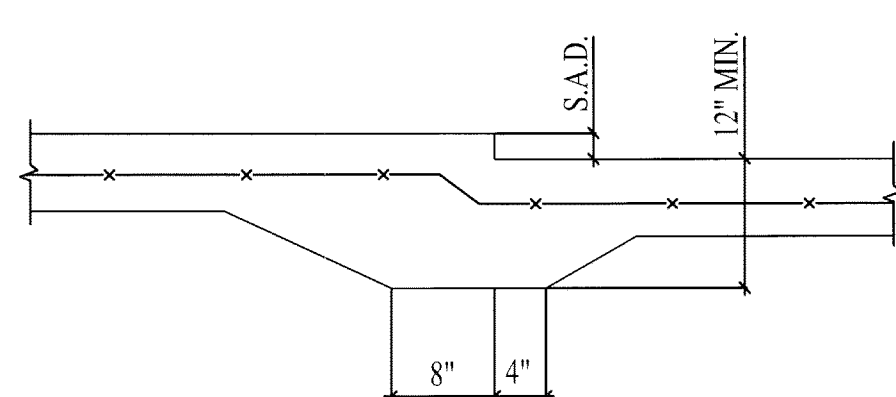
3-D
S0.01
NTS

PIPE PERPENDICULAR TO FTG.



4-D
S0.01
NTS

REINF. @ INTERSECTIONS

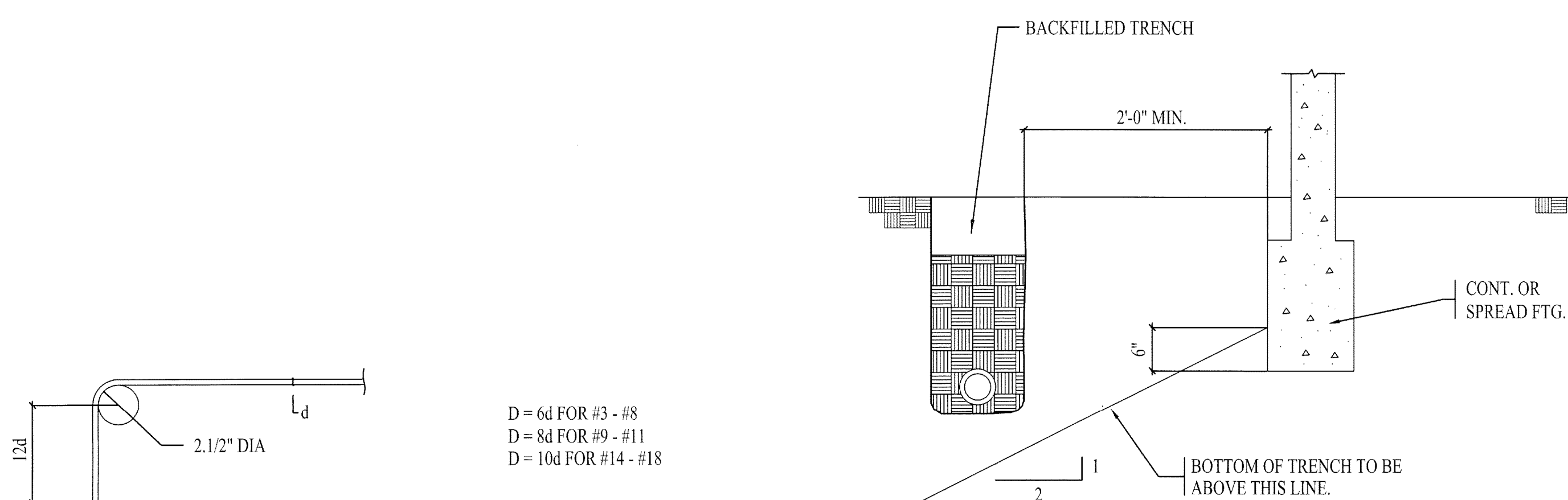


3-C
S0.01
NTS

DEPRESSED SLAB ON GRADE

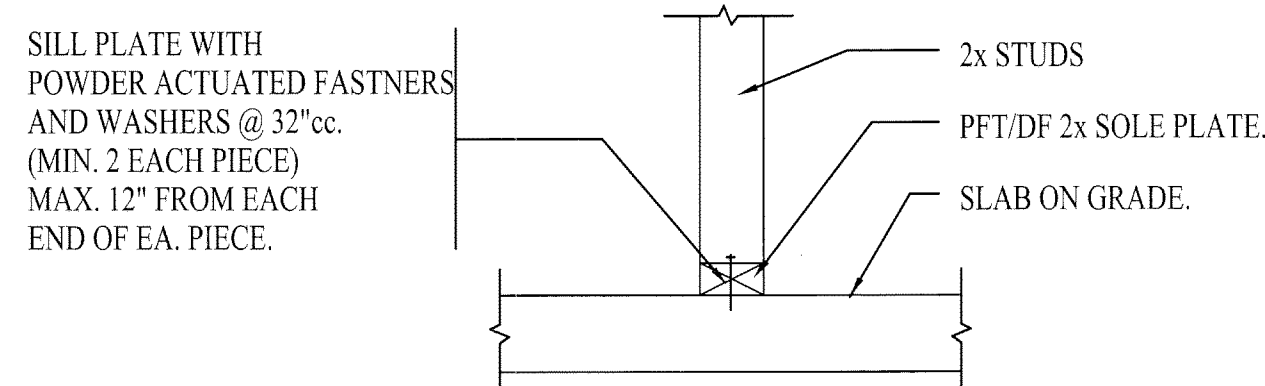
4-C
S0.01
NTS

NOT USED



2-B
S0.01
NTS

PIPE PARALLEL TO FTG.

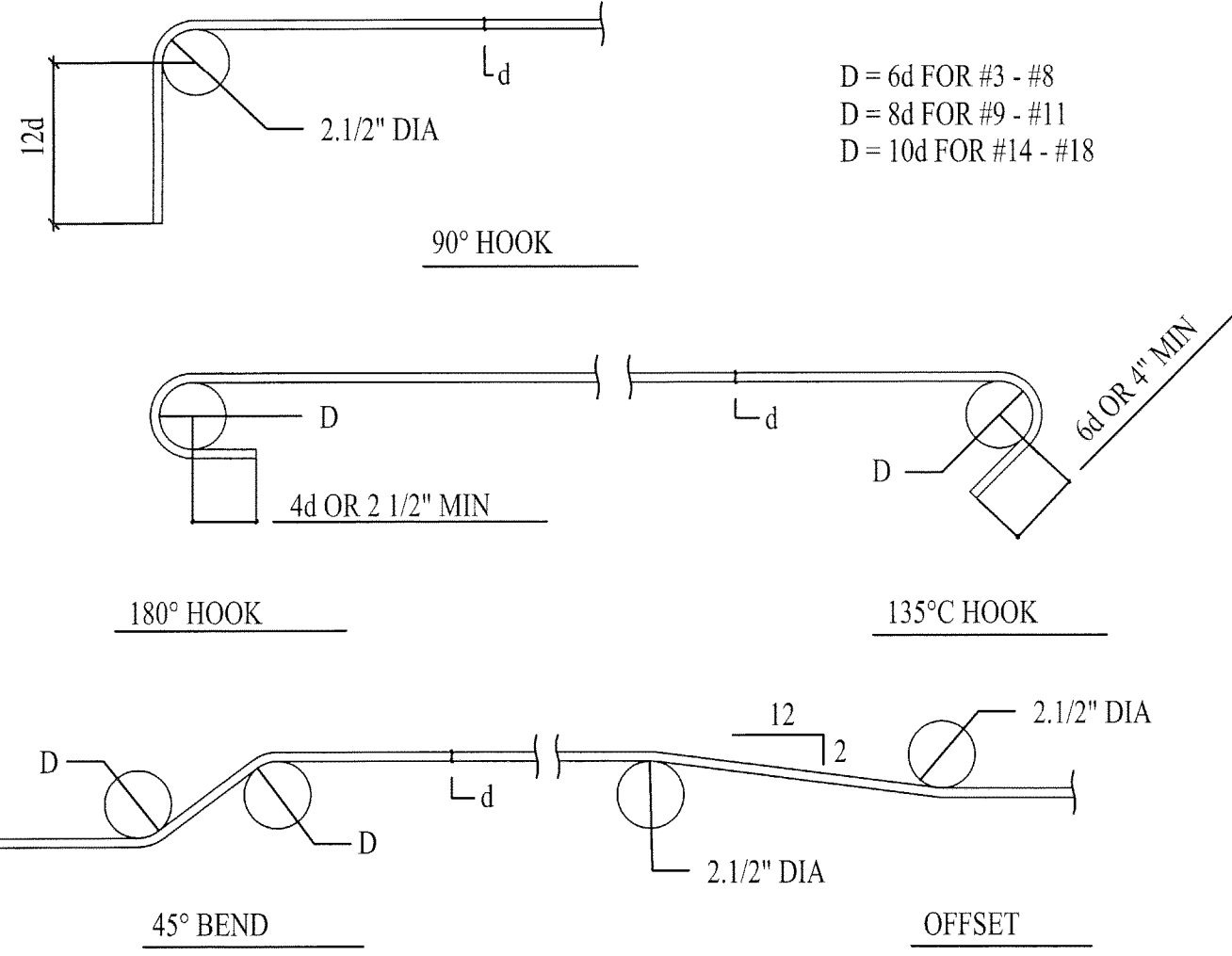


3-B
S0.01
NTS

SLAB ON GRADE NON-BEARING WALL

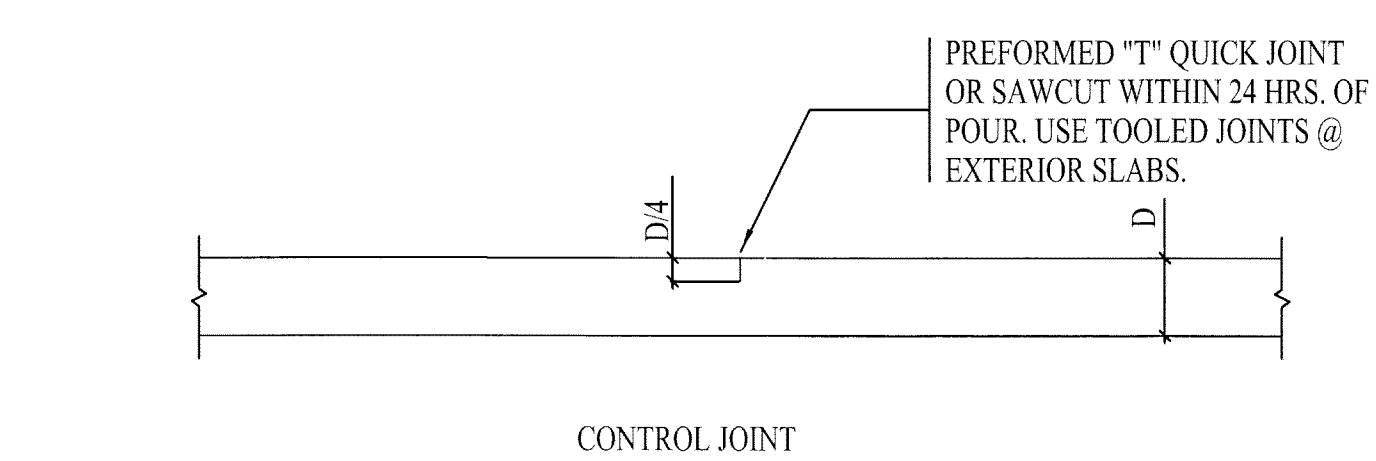
4-B
S0.01
NTS

NOT USED



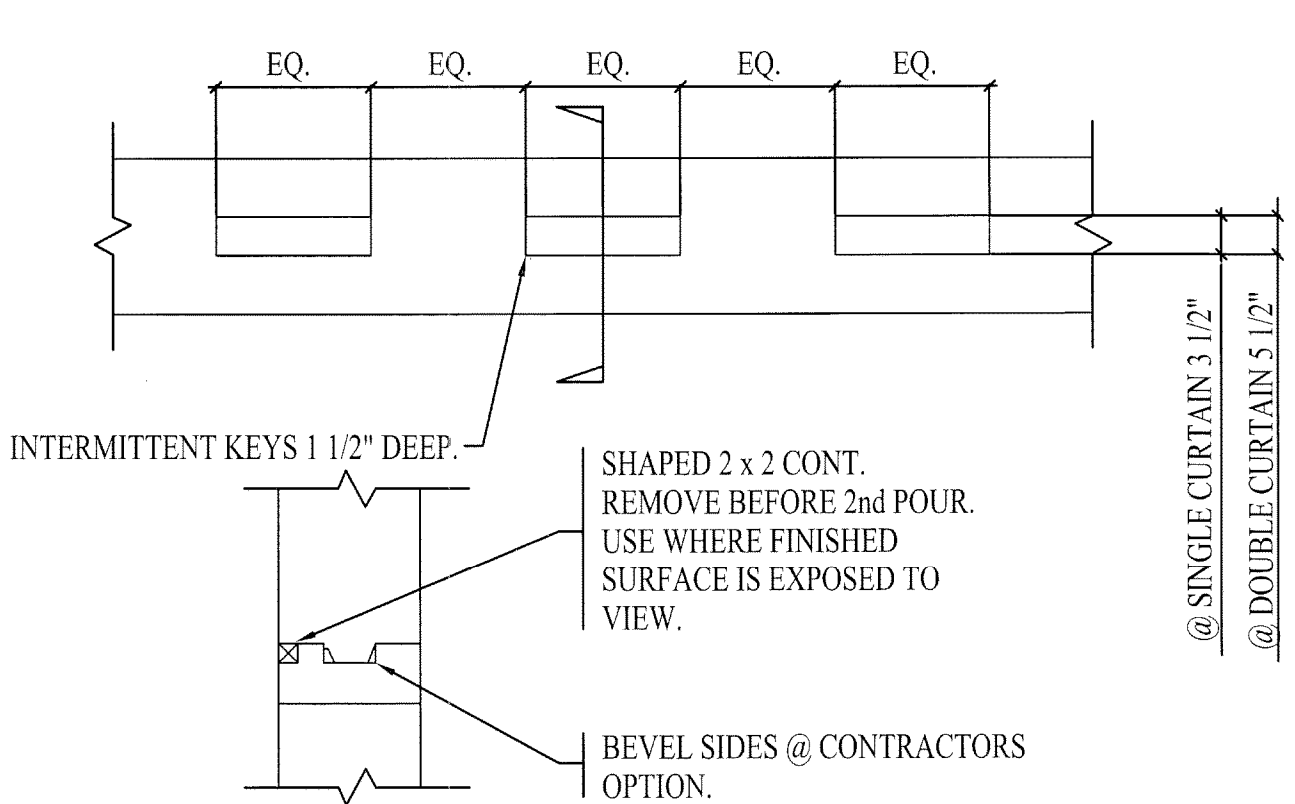
1-A
S0.01
NTS

REINF. BENDS, HOOKS, AND OFFSET



2-A
S0.01
NTS

SLAB ON GRADE JOINT



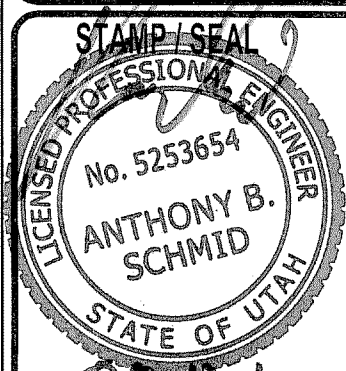
3-A
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NTS

CONST. JT. IN WALL OR FTG.

4-A
S0.01
NTS

NOT USED

**McNEIL ENGINEERING
STRUCTURAL L.C.**



BEAVER ANIMAL SHELTER

BEAVER, UTAH

| REVISIONS | | |
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| REV. | DATE | DESCRIPTION |
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DATE: 05-11-11
PROJECT NO: 11294
CAD DWG. FILE: Animal Shelter.dwg
DRAWN BY: ABS
CHECKED BY: ABS

SHEET TITLE
**TYPICAL
DETAILS**

SHEET NO.
S0.01
SHEET OF 2-5

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FOUNDATION PLAN KEY NOTES:

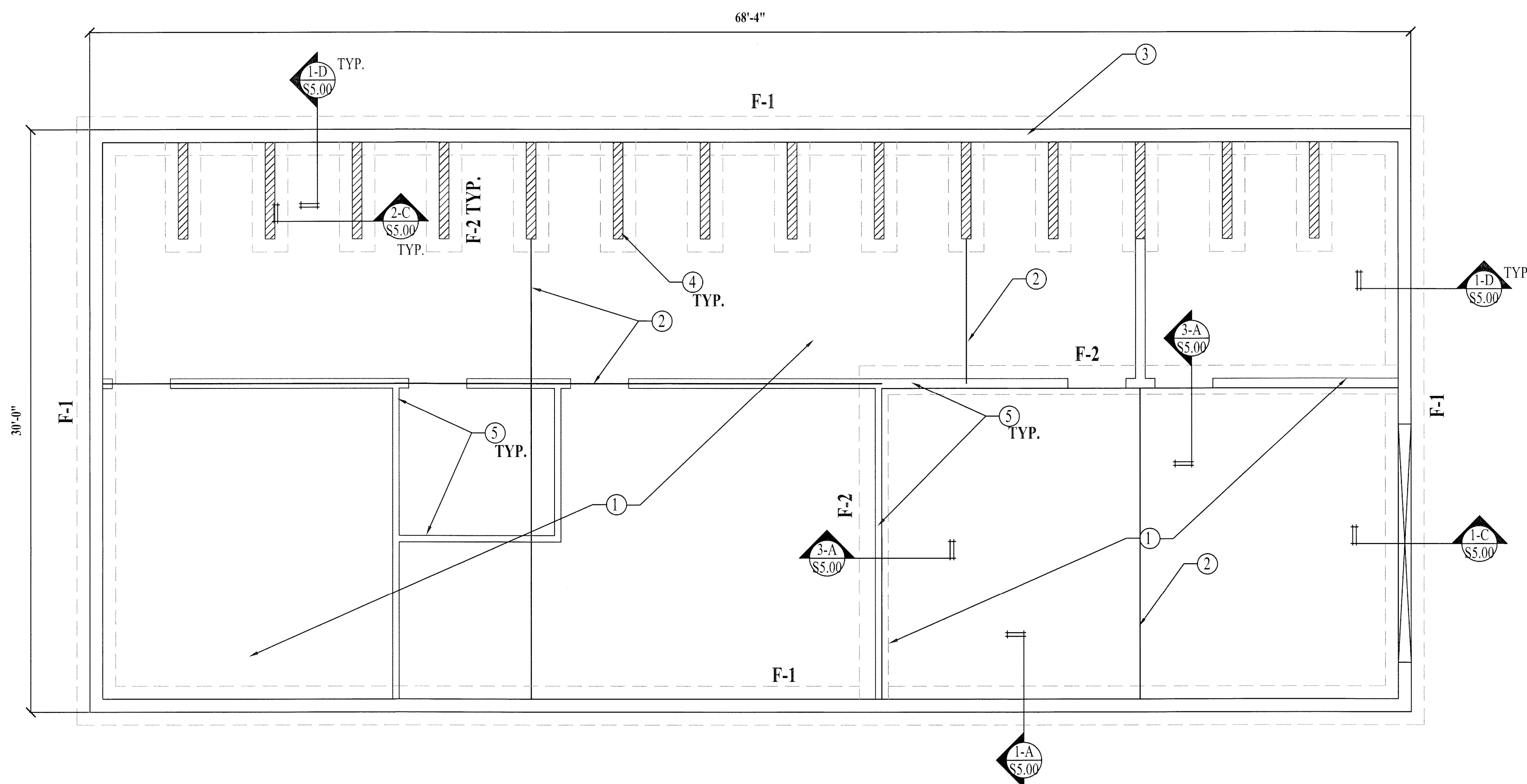
- ① 4" SLAB ON GRADE OVER 4" COMPACTED GRAVEL ON BASE COMPACTED TO 95% OF MODIFIED PROCTOR
- ② CONTROL JOINT SEE B/SO.01
- ③ 8" FOUNDATION WALL
- ④ PROVIDE DOWELS FOR 6" CMU INTERIOR WALLS PER DETAIL
- ⑤ INTERIOR TIMBER FRAMED NON BEARING WALLS.

FOUNDATION PLAN NOTES:

ARCHITECT/CONTRACTOR TO VERIFY ALL DIMENSIONS WITH ARCHITECTURAL PLANS PRIOR TO CONSTRUCTION

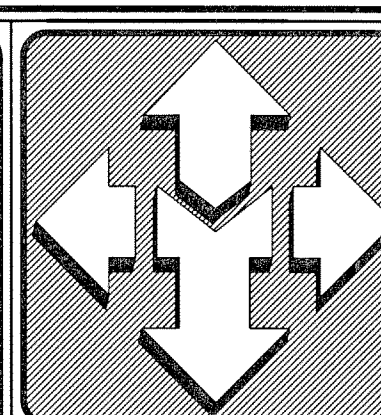
EXTERIOR FOOTING TO BE PLACE 30" BELOW LOWEST ADJACENT GRADE.

ALL MASONRY WALLS TO BE REINFORCED WITH #5 VERTICAL BARS AT 32" ON CENTER AND (1) #5 HORIZONTAL BARS AT 48" ON CENTER UNLESS NOTED OTHERWISE, PROVIDE (2) #5 JAMB STEEL AND (2) #5 BARS AT CORNERS SEE DETAIL 4-B/S5.00. ALL REINFORCING SHALL BE IN GROUTED CELLS AND PLACED IN CENTER OF WALL.



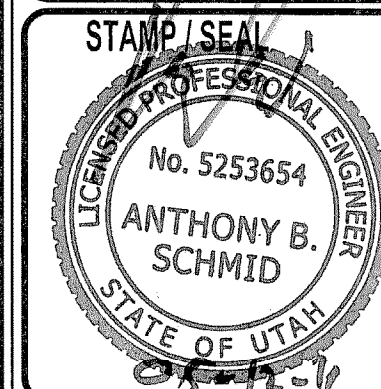
FOOTING & FOUNDATION PLAN

SCALE $1/8'' = 1'-0''$



**McNEIL ENGINEERING
STRUCTURAL L.C.**

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E MAIL info@mcneilleng.com WEB SITE AT www.mcneilleng.com



BEAVER ANIMAL SHELTER

• BEAVER, UTAH

REVISIONS

[illegible]

DATE: 05-11-11

PROJECT NO: 11294

CAD DWG. FILE: Animal Shelter.dwg

DRAWN BY: ABS

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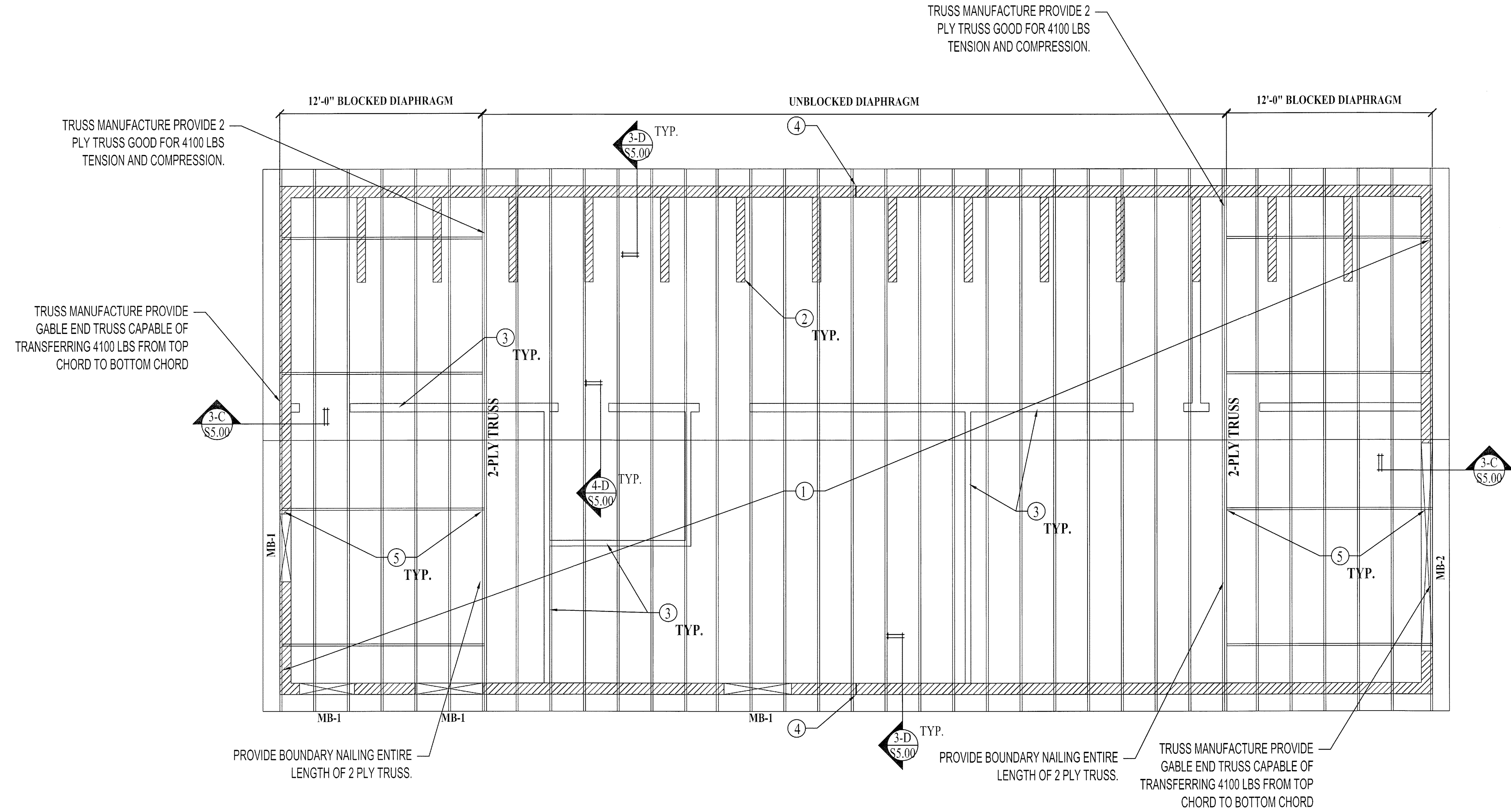
SHEET TITLE

FOOTING &
FOUNDATION
PLAN

SHEET NO

\$1.00

SHEET OF 3-5



- ROOF FRAMING PLAN KEY NOTES:
1. PRE-FABRICATED ROOF TRUSSES AT A MAX SPACING OF 24" O.C.
 2. 6" CMU WALLS 4'-0" TALL WITH #4 BARS AT 24" ON CENTER VERTICAL AND (2) #4 BARS HORIZONTAL AT TOP OF WALL.
 3. NON-BEARING WALLS
 4. PROVIDE CONTROL JOINTS AS SHOWN
 5. FULL HEIGHT TRUSS BLOCKING PER DETAIL 3-B/55.00 AS SHOWN

ROOF FRAMING PLAN NOTES:

VERIFY DIMENSIONS WITH ARCHITECTURAL PLANS

CONTRACTOR TO VERIFY DIMENSIONS PRIOR TO START OF WORK

SEE FOUNDATION PLAN FOR MASONRY WALL REINFORCING REQUIREMENTS SHEET S1.00. ALL REINFORCING SHALL BE IN GROUTED CELLS.

MRB= LOCATION OF MASONRY BEAM SEE SCHEDULE AND DETAIL 2-D/55.00.

ROOF SHEATHING TO BE 5/8" OSB/CDX WITH A MIN SPAN RATING OF 40/20 NAILED WITH 10d NAILS AT 6" ON CENTER PERIMETER AND 12" ON CENTER FIELD.

| MASONRY BEAM SCHEDULE | | | | | |
|-----------------------|-----------|---------------|-------------|--------|----------|
| MARK | MIN DEPTH | NOMINAL WIDTH | REINFORCING | | STIRRUPS |
| | | | TOP | BOTTOM | |
| MB-1 | 16" | 8" | (2)#4 | (2)#5 | N/A |
| MB-2 | 24" | 8" | (2)#4 | (2)#5 | N/A |
| | | | | | |
| | | | | | |
| | | | | | |

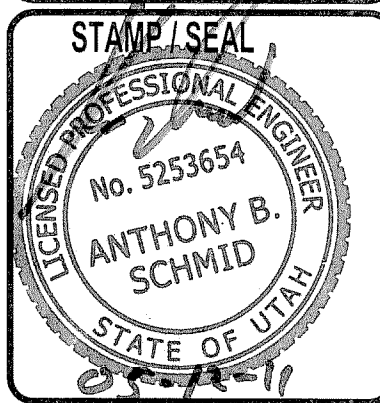
1. HORIZONTAL BARS SHALL RUN 24" PAST EACH SIDE OF OPENING.
2. VERTICAL WALL REINFORCING SHALL RUN THROUGH BEAM WITH 90° HOOK @ BOTTOM.

ROOF FRAMING PLAN

SCALE 1/8" = 1'-0"

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6895 SOUTH 900 EAST MIDVALE, UTAH 84047
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E-MAIL: info@mcneileng.com WEB SITE: AT www.mcneileng.com



BEAVER ANIMAL SHELTER

BEAVER, UTAH

REVISIONS

| REV. | DATE | DESCRIPTION |
|------|----------|---------------------|
| 1 | 11-17-10 | JOIST BEARING ADDED |
| | | |
| | | |
| | | |
| | | |

DATE: 05-11-11
PROJECT NO: 11294
CAD DWG. FILE: Animal Shelter.dwg
DRAWN BY: ABS
CHECKED BY: ABS

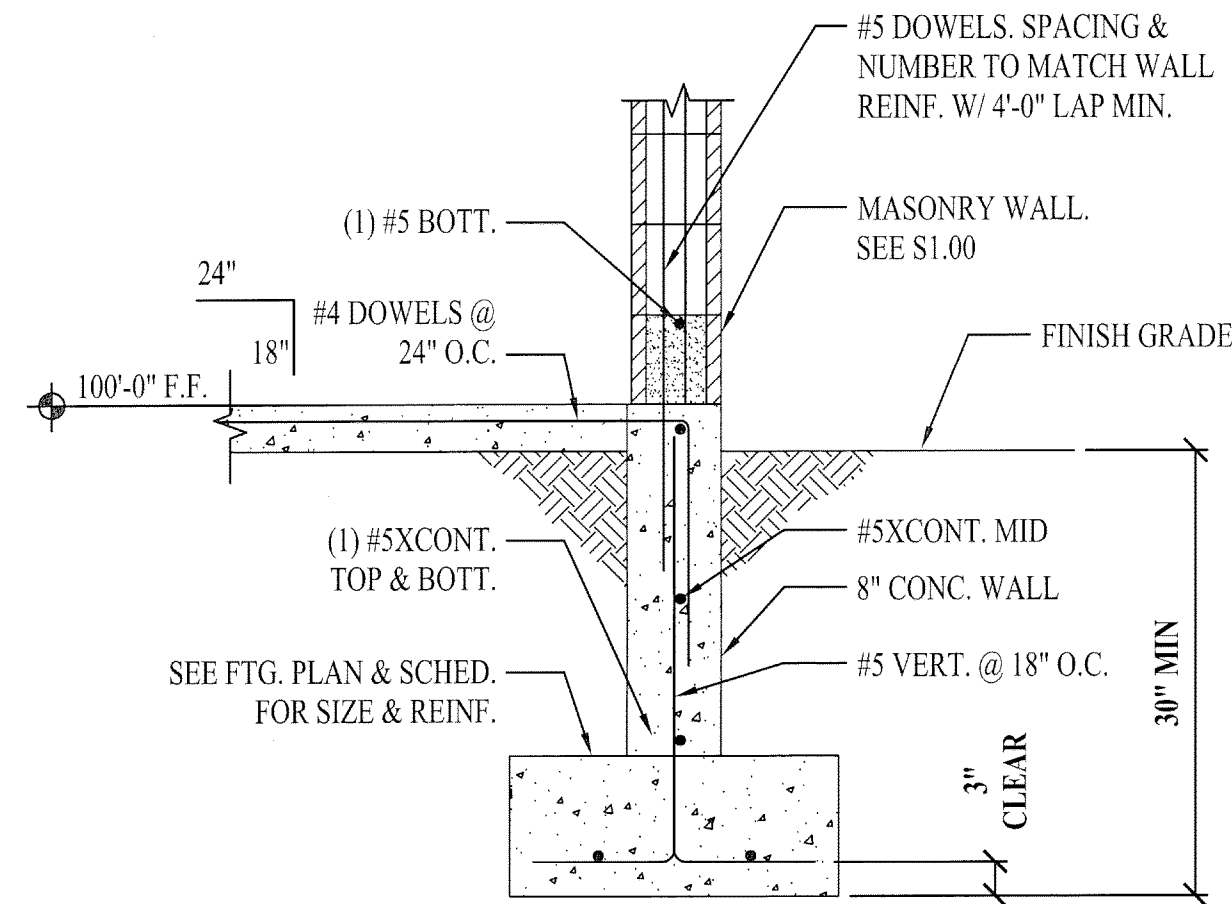
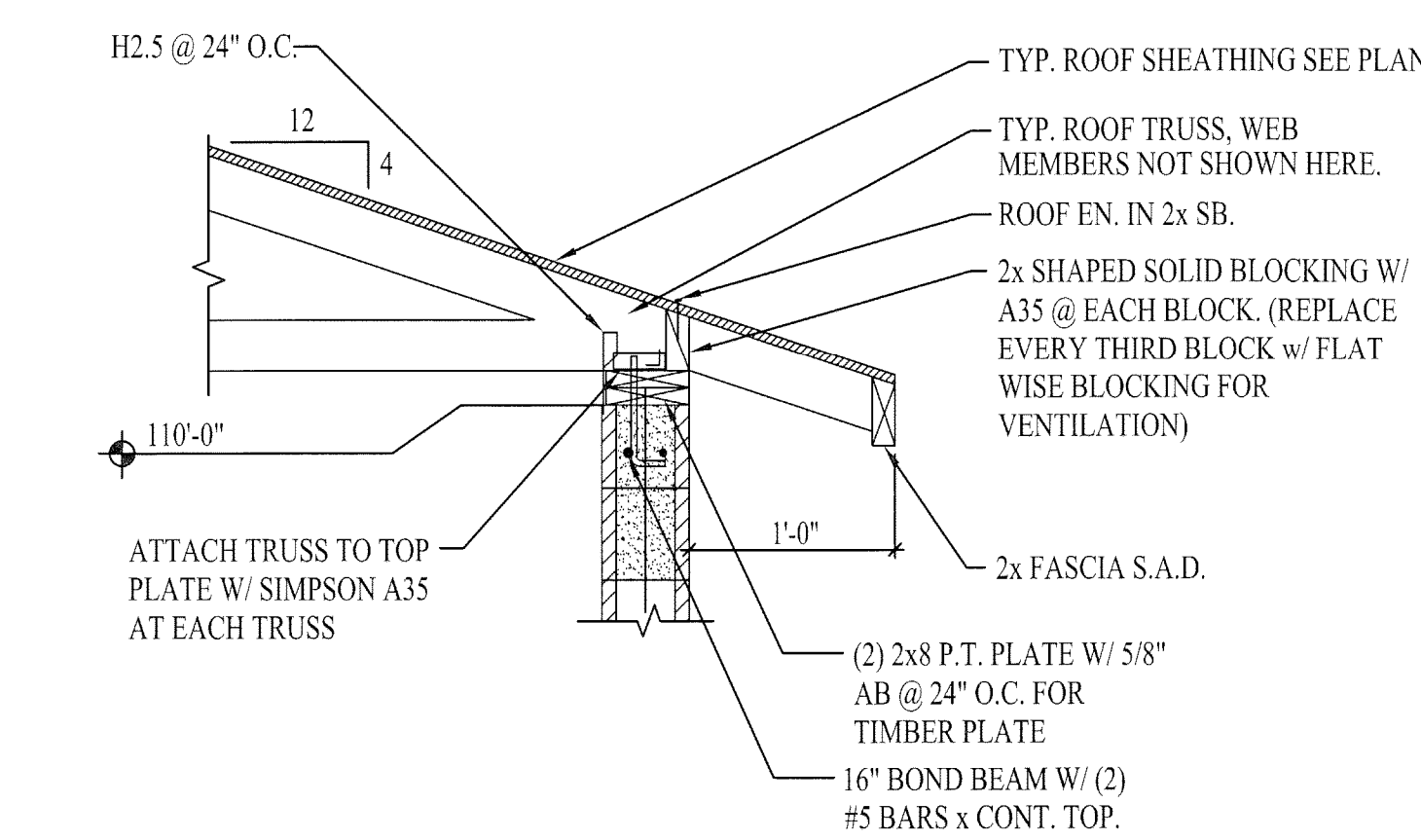
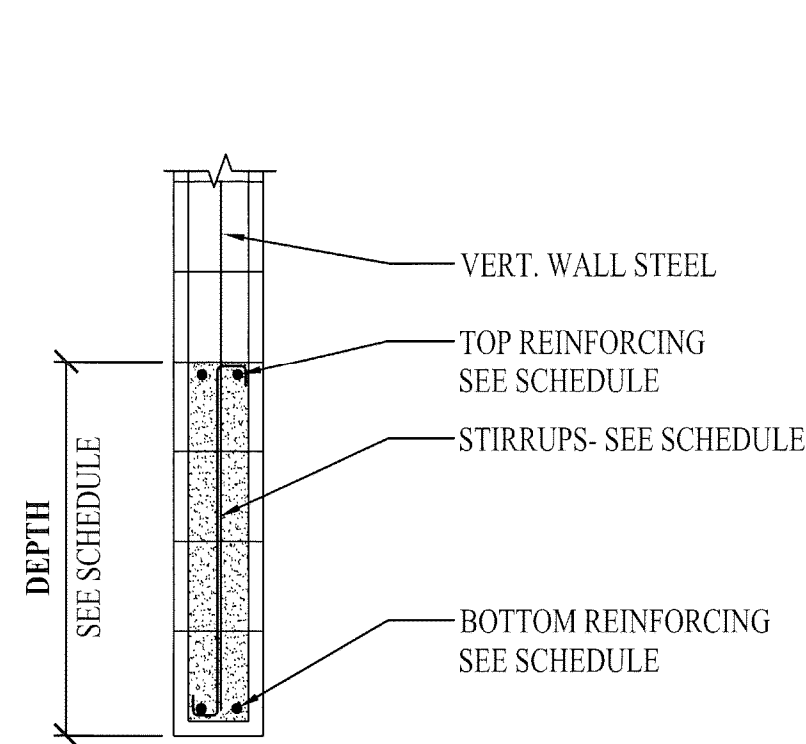
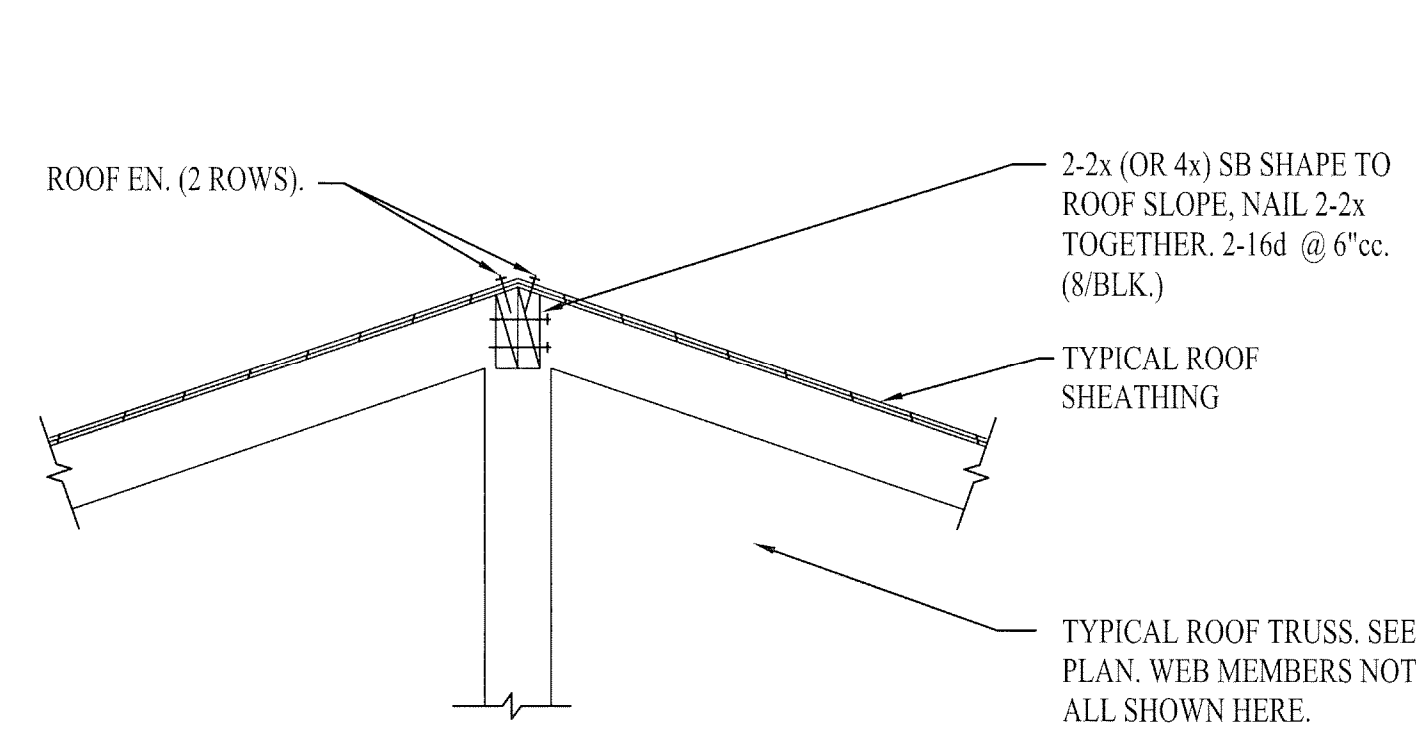
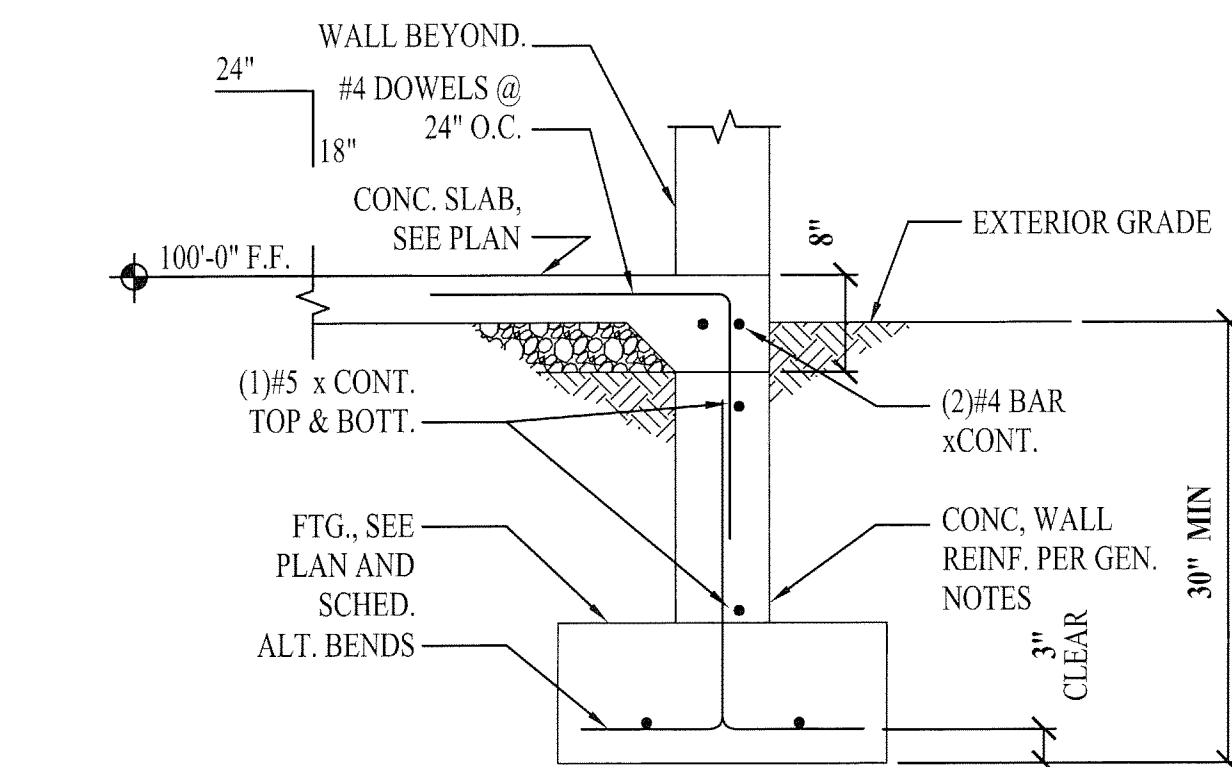
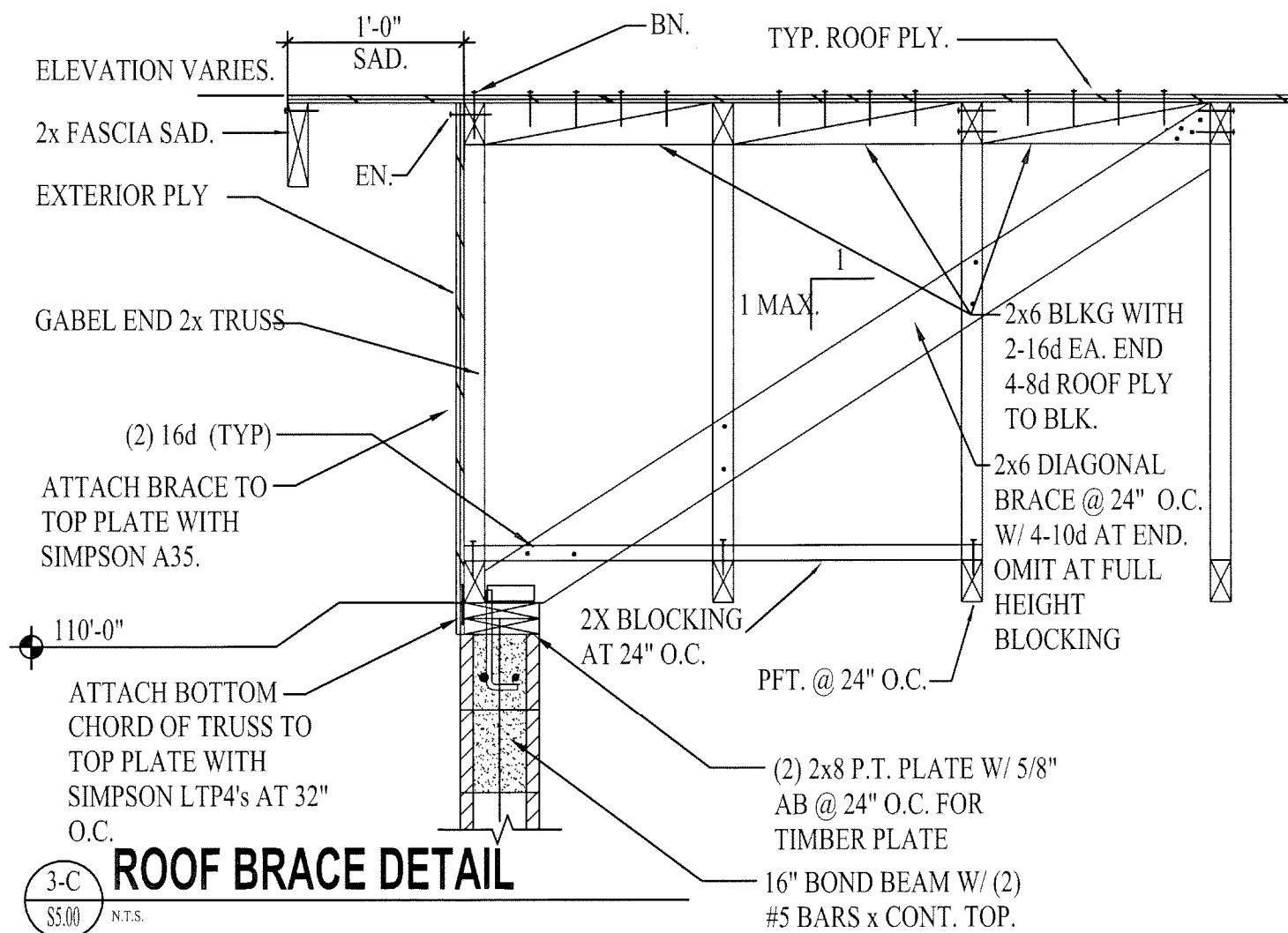
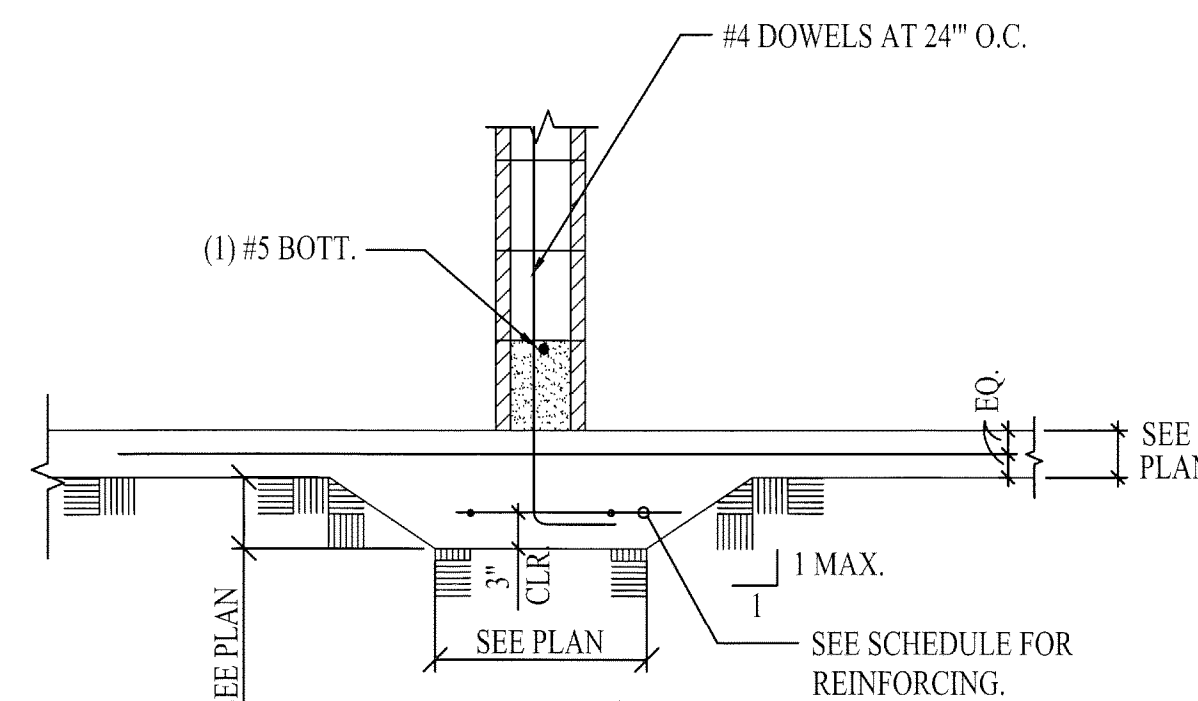
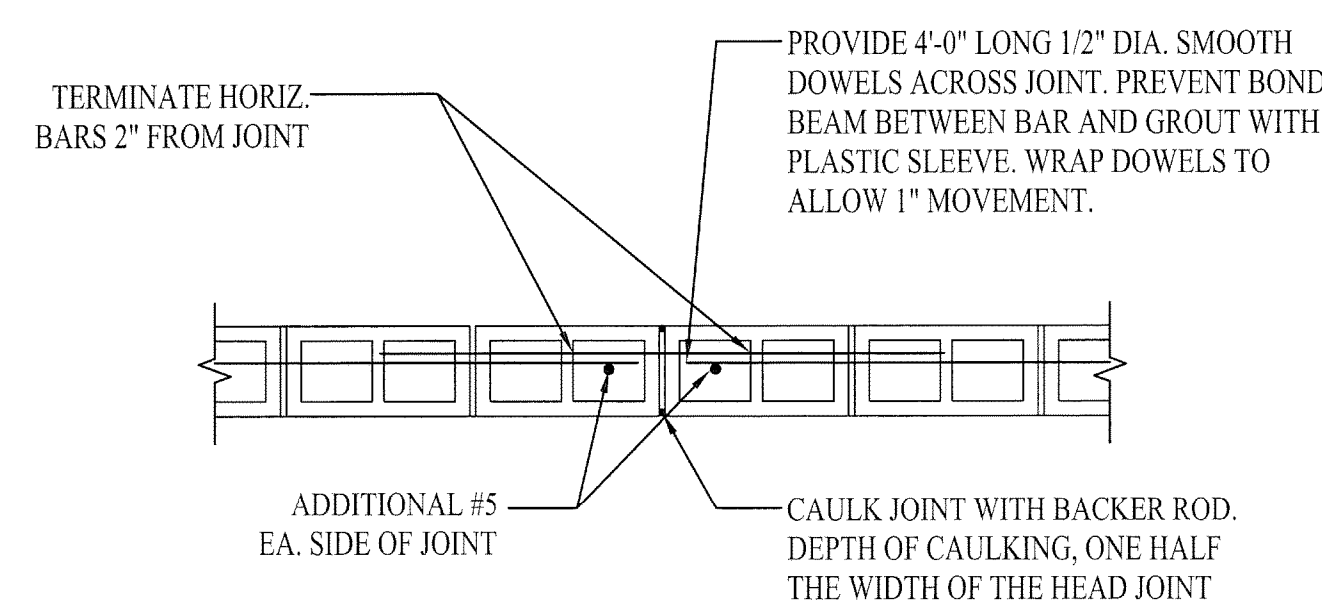
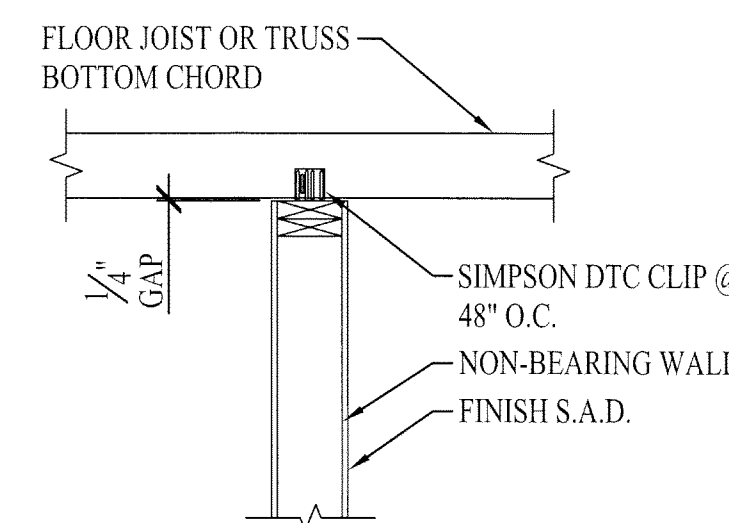
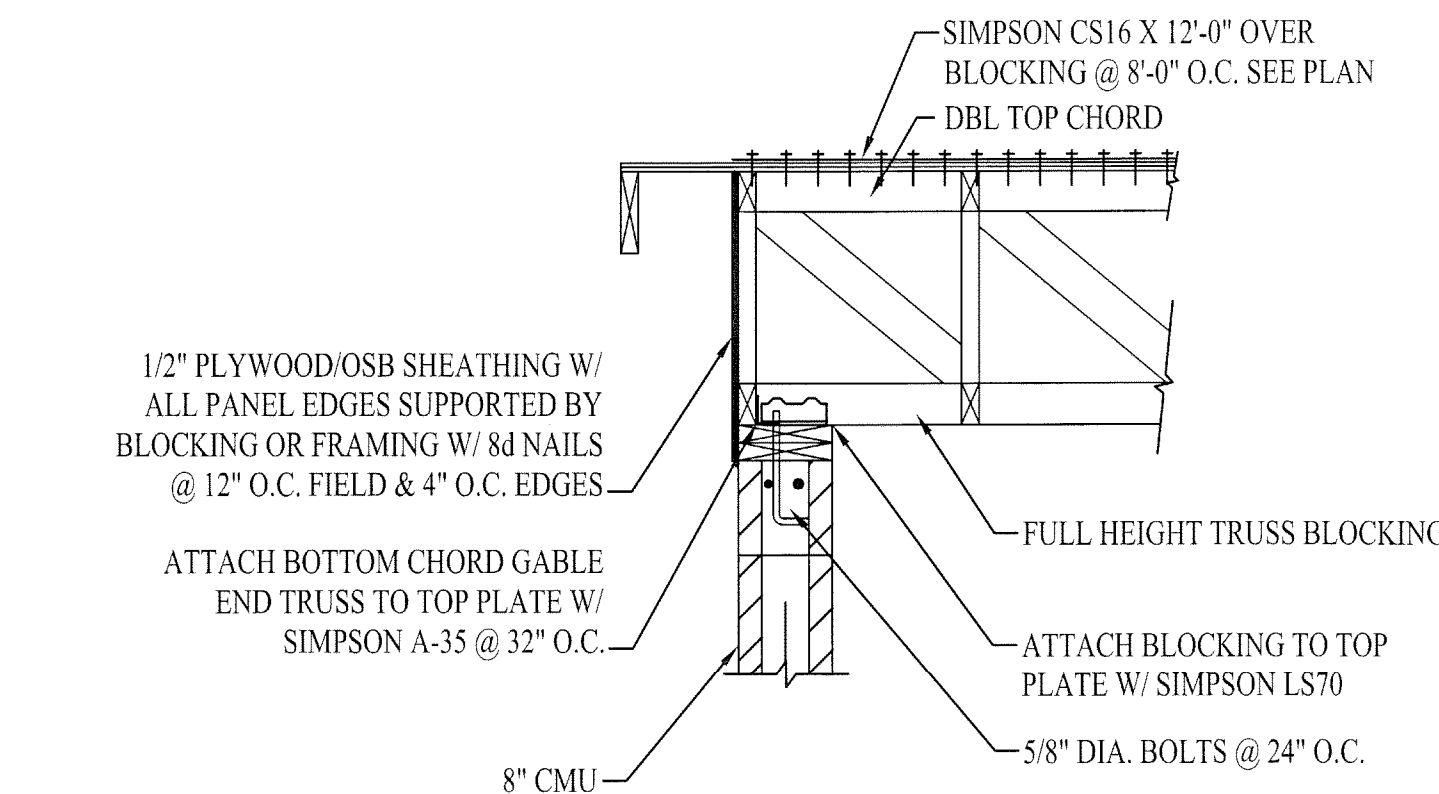
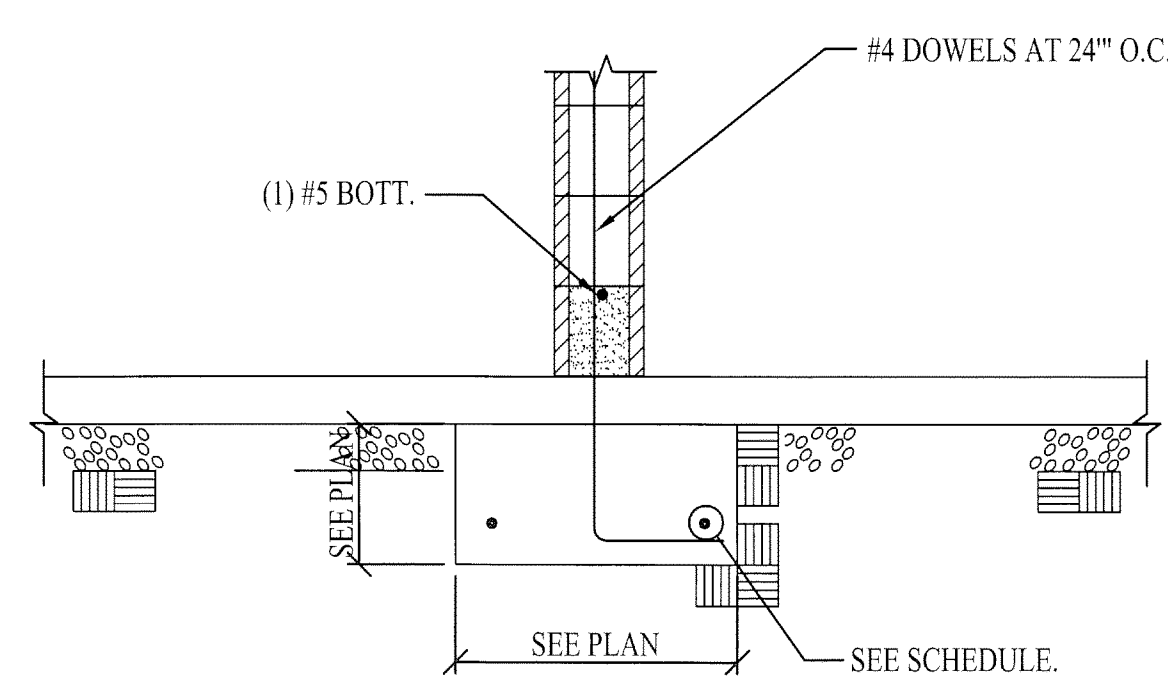
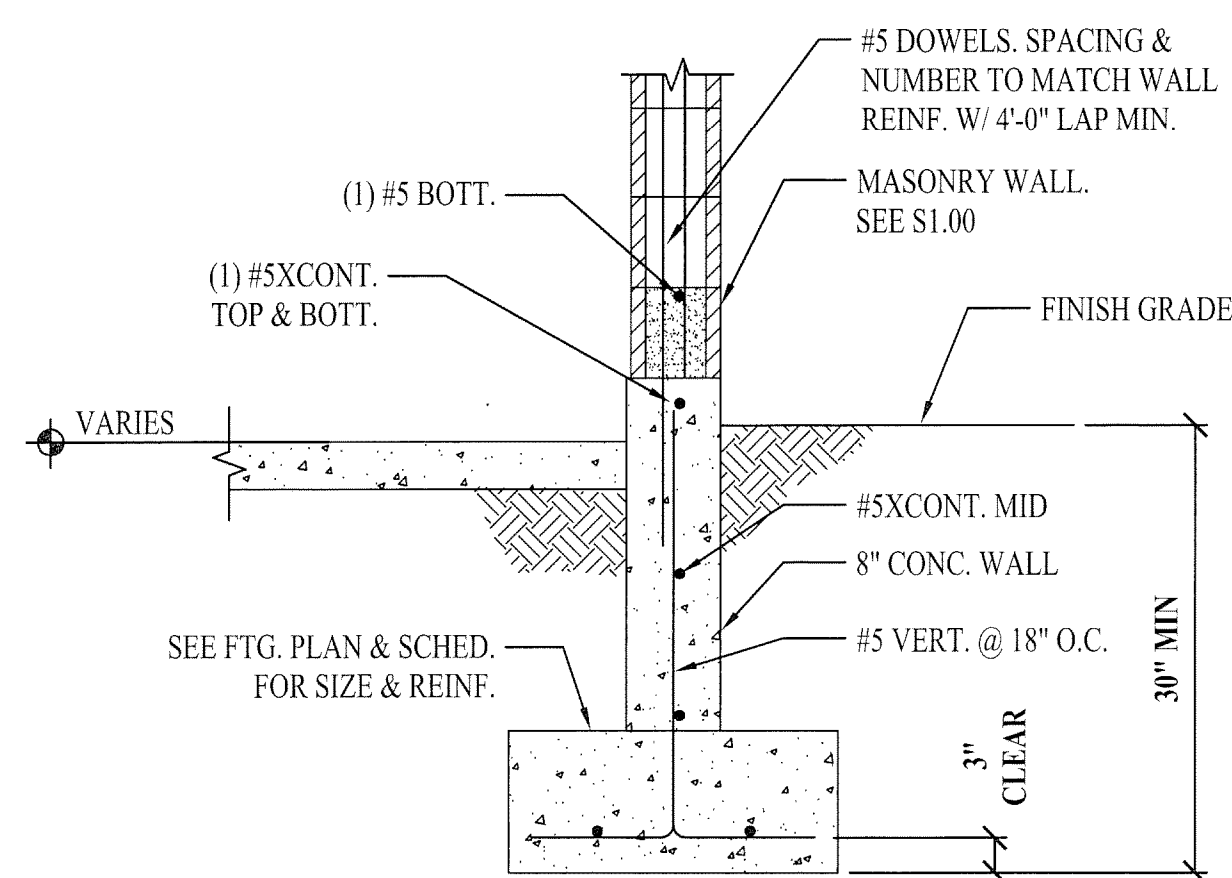
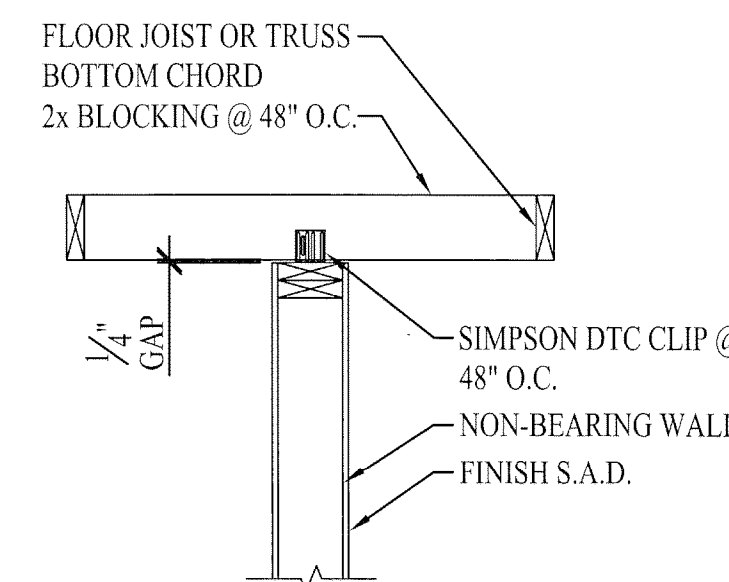
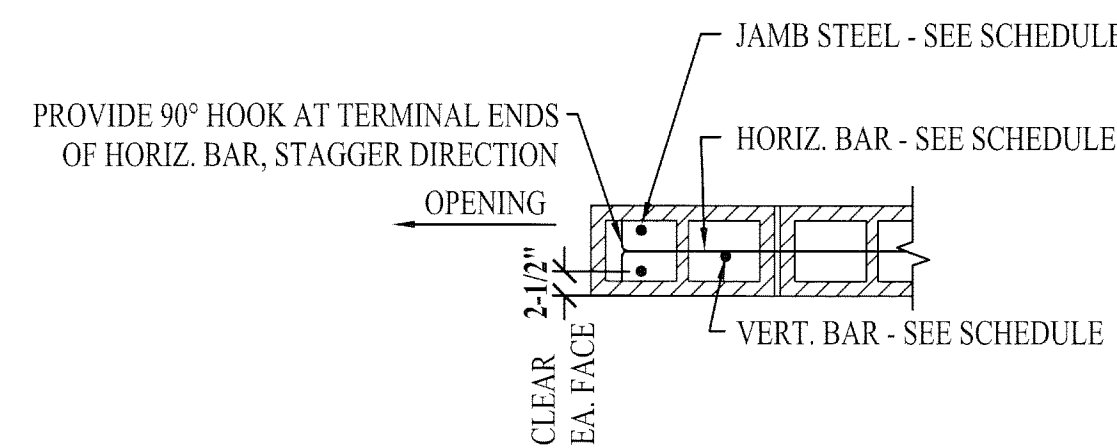
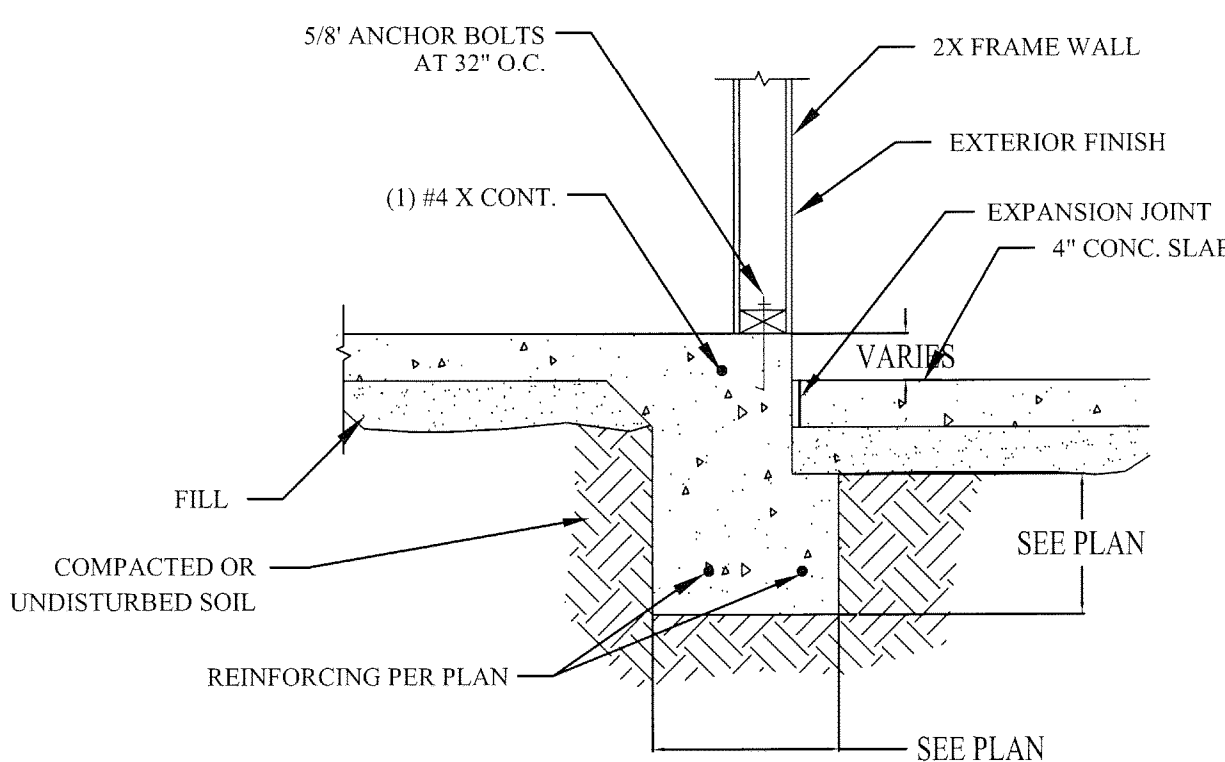
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MAIN FLOOR
FRAMING
PLAN

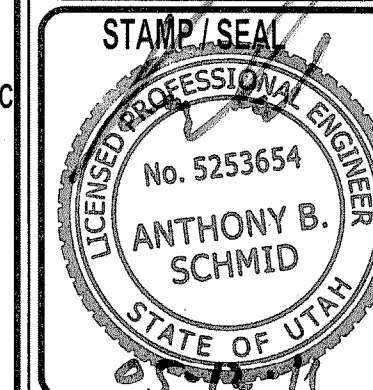
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S1.01

SHEET OF 4-5

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S5.00 NTS3-D
S5.00 NTS4-D
S5.00 NTS1-C
S5.00 NTS2-C
S5.00 NTS3-C
S5.00 NTS4-C
S5.00 NTS1-B
S5.00 NTS2-B
S5.00 NTS3-B
S5.00 NTS4-B
S5.00 NTS1-A
S5.00 NTS2-A
S5.00 NTS3-A
S5.00 NTS4-B
S5.00 NTS

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BEAVER ANIMAL SHELTER

BEAVER, UTAH

REVISIONS

| REV. | DATE | DESCRIPTION |
|------|------|-------------|
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| | | |
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DATE: 05-11-11
PROJECT NO: 11294
CAD DWG. FILE: Animal Shelter.dwg
DRAWN BY: ABS
CHECKED BY: ABS

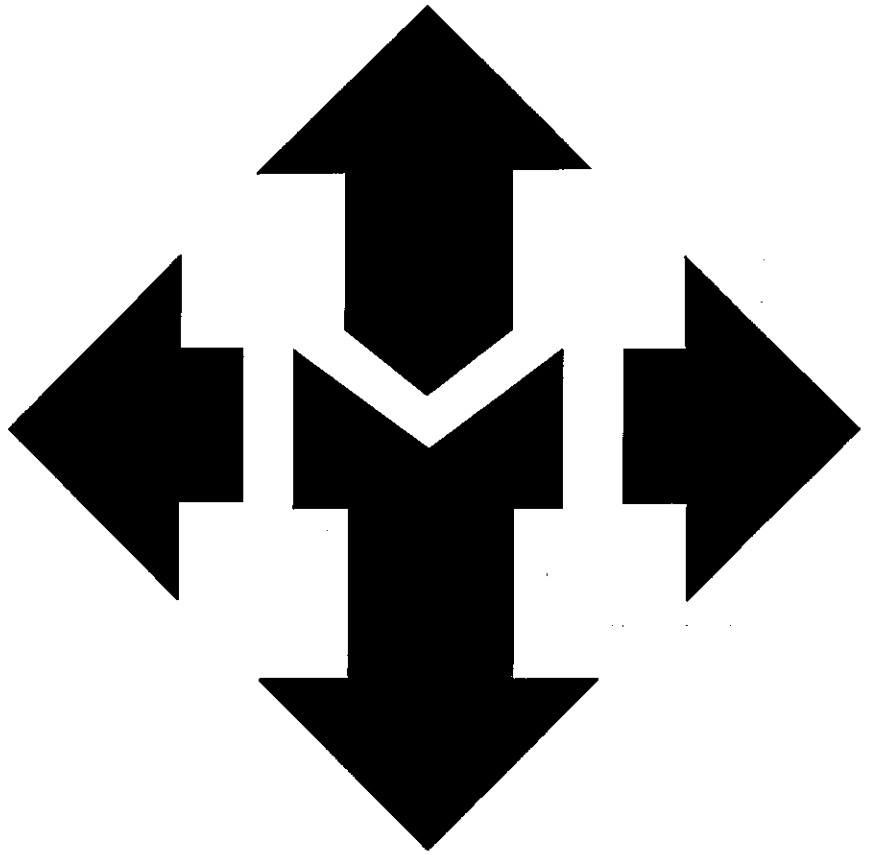
SHEET TITLE

STRUCTURAL
DETAILS

SHEET NO.

S5.00

SHEET OF 5-5



McNeil Engineering, Structural, L.C.

A Part of the McNeil Group
1664 South Dixie Drive, Suite D-104
St. George, UT 84770
Ph: 435-673-5127 fax: 435-673-6090

Structural Calculations

For:

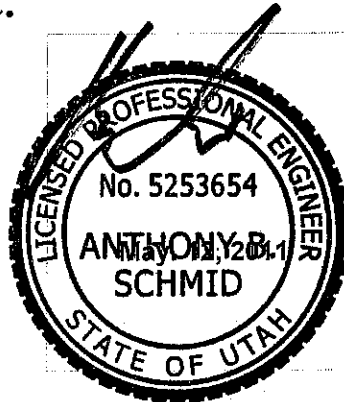
Beaver County

Attn: Scott Albrecht

Beaver Animal Shelter

Beaver, Utah

Prepared By Anthony Beau Schmid S.E.

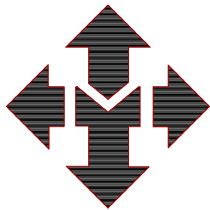


April 18, 2011

IMPORTANT

If the seal is not in red or green ink and the signature is not in red or blue ink, then this is an unauthorized copy and is to be rejected as unsanctioned and unusable.

McNeil Engineering assumes responsibility only for the items addressed herein and does not assume responsibility for the remainder of the structure. No site observations are scheduled to verify the understanding of the contractor or the proper installation of the items addressed.



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1664 SOUTH DIXIE DRIVE SUITE D-104
ST. GEORGE, UTAH 84770
(435) 673-5127 FAX: (435) 673-6090

PROJECT INFORMATION:

Project Name: Beaver County , Beaver Animal Shelter
Project Location: Beaver, Utah

DESIGN CRITERIA:

Governing Building Code: IBC 2009
Type of Construction: Specially Reinforced Masonry Shear Walls
Snow Live Load: 30 psf
Roof Dead Load: 20 psf
Wind (3 Second Gust): 90 MPH, exp C
Seismic Use Group: I
Seismic Design Category: D
Site Class: D
 S_{DS} : 0.61
 S_{D1} : 0.31
R: 5

CONSTRUCTION MATERIALS:

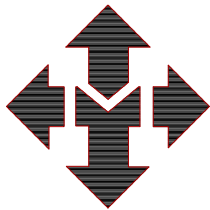
Concrete 28 day Strength
Footings: 3000 psi (2500 psi used in design)
Walls: 3000 psi (2500 psi used in design)
Slab on Grade: 4000 psi (2500 psi used in design)

Reinforcing Grade: ASTM A615 Grade 60

SOILS CRITERIA:

Bearing Pressures 1500 psf from IBC 2006 Chapter 18

11294
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| FOOTING AND FOUNDATION CALCULATIONS | 10 |
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PAVEMENT & ROOF CONSULTING

PROJECT

Beaver County
Beaver Animal Shelter
Beaver, Utah

DATE

May, 11

SHEET

7

DESIGNED BY

A B S

PROJECT NO.


11294**VERTICAL LOADING****Masonry Lintel Design****Masonry Lintel Design Sheet**

Project: Beaver Animal Shelter

Mark:

4 FT WDW HDR**3.5 FT MAN DOOR****12.5 FT GARAGE DOOR****4 FT WDW HDR**

| | | | | |
|-----------------------------------|-------------|-------------|-------------|-------------|
| n: | 25.8 | 25.8 | 25.8 | 25.8 |
| F'm (psi): | 1500 | 1500 | 1500 | 1500 |
| Uniform Live (psf): | 30 | 30 | 30 | 30 |
| Uniform Dead (psf): | 15 | 15 | 15 | 15 |
| Additional Dead Load (plf): | 174 | 174 | 174 | 174 |
| Trib. width (ft): | 16 | 16 | 3 | 3 |
| Point Live (lb): | 0 | 0 | 0 | 0 |
| Point Dead (lb): | 0 | 0 | 0 | 0 |
| Dist. from support < L/2 (ft): | 0 | 0 | 0 | 0 |
| Triangle Live W (lb): | 0 | 0 | 0 | 0 |
| Triangle Dead W (lb): | 0 | 0 | 0 | 0 |
| Span (ft): | 4 | 3.5 | 12.5 | 4 |
| Depth (in): | 16 | 16 | 24 | 16 |
| d (in): | 14 | 14 | 22 | 14 |
| Width (in): | 7.625 | 7.625 | 7.625 | 7.625 |
| Area of Steel (in ²): | 0.62 | 0.62 | 0.62 | 0.62 |
| Lintel Dead Load (plf): | 127 | 127 | 191 | 127 |
| Total Uniform Load (plf): | 1021 | 1021 | 500 | 436 |
| Live Uniform Load (plf): | 480 | 480 | 90 | 90 |
| Moment (lb.-ft): | 2042 | 1564 | 9758 | 872 |
| Max Shear (lb.): | 2042 | 1787 | 3123 | 872 |
| Rho: | 0.00581 | 0.00581 | 0.00370 | 0.00581 |
| k: | 0.42 | 0.42 | 0.35 | 0.42 |
| j: | 0.86 | 0.86 | 0.88 | 0.86 |
| 2/jk: | 5.56 | 5.56 | 6.44 | 5.56 |
| fb (psi): | 91.21 | 69.83 | 204.43 | 38.95 |
| fs (psi): | 3279.99 | 2511.24 | 9724.90 | 1400.82 |
| fv (psi): | 22.23 | 19.45 | 21.09 | 9.49 |
| Fb (psi): | 495 | 495 | 495 | 495 |
| Fs (psi): | 24000 | 24001 | 24002 | 24003 |
| Fv (psi): | 38.73 | 38.73 | 38.73 | 38.73 |
| Masonry Stress : | O.K. | O.K. | O.K. | O.K. |
| Steel Stress : | O.K. | O.K. | O.K. | O.K. |
| Shear Stress : | O.K. | O.K. | O.K. | O.K. |

| | | | |
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| SHEET 8 | DATE May, 11 | PROJECT Beaver County Beaver Animal Shelter Beaver, Utah | |
| PROJECT NO. 11294 | DESIGNED BY A B S | | |

Masonry Wall Design

Out of Plane Reinforcing of a Masonry Wall

Mark: **TYPICAL WALL**

tnom = 8 in
 grout spc. = 32 in
 # bars/cell = 1
 EST = 4.9 in pp 300 R.M.E.H.
 r = 1.41 in
 d = 3.8 in pp 173 R.M.E.H.
 h' = 10 ft
 f'm = 1500 psi
 Fs = 24000 psi
 n = 25.8 modular ratio
 q max = 21.5 psf out of plane seismic/wind force
 W/S W Wind (W) or Seismic (E)
 wroofLL = 480 plf
 % seismic 0
 wroofDL = 240 super imposed dead load
 wfloorLL = 0 plf
 wfloor dl = 0 plf super imposed dead load
 wdl self = 290 plf 1/2 weight of wall
 e roof = 0 in
 efloor = 0 in

Reinforcing Size Spacing
 #5 32 in o.c. rho = 0.002549
 As = 0.11625 in²/ft
 k = 0.303
 j = 0.90

Fa = 256.82 psi from ACI 530-99 eq. 2-17

No seismic/wind:

M = 0 lb-ft/ft
 fa = 17.18 psi **O.K.**
 fb = 461.89 psi Maximum bending stress allowed based on unity formula

Wind/seismic active

M = 269 lb-ft/ft **<= GOVERNS**
 fa = 13.10 psi **O.K.**
 fb = 633 psi Maximum bending stress allowed based on unity formula

Mall mas = 1244.5407 lb-ft/ft
 Mall steel = 1056.4389 lb-ft/ft

M gov = 1056.4389 lb-ft/ft **O.K. >** 269 lb-ft/ft

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PROJECT

Beaver County
Beaver Animal Shelter
Beaver, Utah

DATE

May, 11

SHEET

9

DESIGNED BY

A B S

PROJECT NO.

11294**Out of Plane Reinforcing of a Cantilever Masonry Wall**Mark: **6" CMU WALL KENNELS**

| | | |
|--------------|--------------|-------------------------------------|
| tnom = | 6 | in |
| grout spc. = | 24 | in |
| # bars/cell | 1 | |
| EST = | 4.1 | in pp 300 R.M.E.H. |
| r = | 1.18 | in |
| d = | 3.8 | in pp 173 R.M.E.H |
| h' = | 4 | ft (cant.) |
| f'm = | 1500 | psi |
| Fs = | 24000 | psi |
| n = | 25.8 | modular ratio |
| q max = | 10 | psf out of plane seismic/wind force |
| W/S | E | Wind (W) or Seismic (E) |
| wroofLL = | 0 | plf |
| % seismic | 0 | |
| wroofDL = | 0 | super imposed dead load |
| wfloorLL = | 0 | super imposed live load |
| wfloor DL = | 0 | super imposed dead load |
| wdl self = | 192 | plf |
| e roof = | 0 | in |
| efloor = | 0 | in |

| | | |
|-------------|-----------|-------------------|
| | Size | Spacing |
| Reinforcing | #4 | 24 in o.c. |

rho = 0.002193

As = 0.1 in²/ft

k = 0.285

j = 0.91

Fa = 372.58 psi from ACI 530-99 eq. 2-17

No seismic/wind:

M = 0 lb-ft/ft

fa = 3.90 psi

fb = 489.82 psi

O.K.

Maximum bending stress allowed based on unity formula

Wind/seismic active

M = 80 lb-ft/ft

fa = 3.90 psi

fb = 653 psi


<= GOVERNS**O.K.**

Maximum bending stress allowed based on unity formula

Mall mas = 1214.5619 lb-ft/ft

Mall steel = 914.9305 lb-ft/ft

M gov = 914.9305 lb-ft/ft **O.K. >** 80 lb-ft/ft

| | | | |
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| SHEET 10 | DATE May, 11 | PROJECT Beaver County Beaver Animal Shelter Beaver, Utah | |
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Footing and Foundation Calculations

Continuous Footings

Project: Animalshelter
 Location: Exterior Continuous Ftg.
 Footing
 [2006 International Building Code(2005 NDS)]
 Footing Size: 24.0 IN Wide x 12.0 IN Deep Continuous Footing With 8.0 IN
 Thick x 24.0 IN Tall Stemwall
 Longitudinal Reinforcement: (2) Continuous #5 Bars
 Transverse Reinforcement: #5 Bars @ 14.00 IN. O.C. (unnecessary)
 Section Footing Design Adequate



Anthony
 McNeil Engineering
 1661 South Dixie Drive
 St. George, Utah 84770

page
 of

StruCalc Version 8.0.100.0

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FOOTING PROPERTIES

Allowable Soil Bearing Pressure: $Q_s = 1500$ psf
 Concrete Compressive Strength: $F'_c = 2500$ psi
 Reinforcing Steel Yield Strength: $F_y = 60000$ psi
 Concrete Reinforcement Cover: $c = 3$ in

FOOTING SIZE

Width: $W = 24$ in
 Depth: $Depth = 12$ in
 Effective Depth to Top Layer of Steel: $d = 8.06$ in

STEMWALL SIZE

Stemwall Width: 8 in
 Stemwall Height: 24 in
 Stemwall Weight: 150 pcf

FOOTING CALCULATIONS

Bearing Calculations:

Ultimate Bearing Pressure: $Q_u = 805$ psf
 Effective Allowable Soil Bearing Pressure: $Q_e = 1350$ psf
 Width Required: $W_{req} = 1.19$ in2
 Beam Shear Calculations (One Way Shear):
 Beam Shear: $V_u1 = 0$ lb
 Allowable Beam Shear: $V_{c1} = 7256$ lb

Transverse Direction:

Bending Calculations:

Factored Moment: $M_u = 2848$ in-lb
 Nominal Moment Strength: $M_n = 0$ in-lb

Reinforcement Calculations:

Concrete Compressive Block Depth: $a = 0.61$ in
 Steel Required Based on Moment: $A_s(1) = 0.01$ in2
 Min. Code Req'd Reinf. (Shrink./Temp. (ACI-10.5.4)) $A_s(2) = 0.26$ in2
 Controlling Reinforcing Steel: $A_{s-reqd} = 0.26$ in2
 Selected Reinforcement: Trans: #5's @ 14.0 in. o.c.
 Reinforcement Area Provided: $A_s = 0.26$ in2

Development Length Calculations:

Development Length Required: $L_d = 15$ in
 Development Length Supplied: $L_{d-sup} = 5$ in

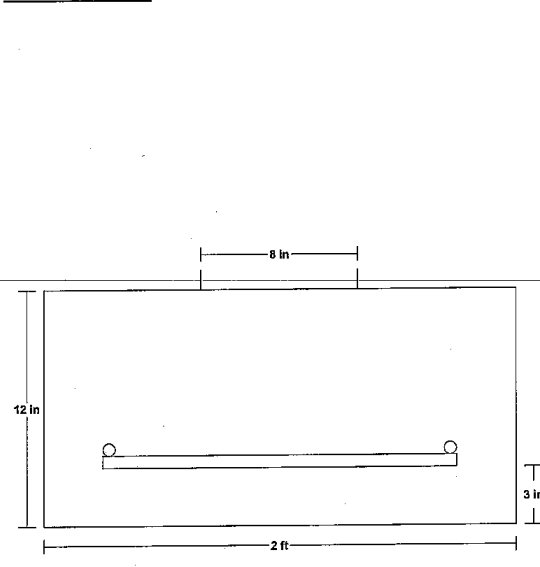
Longitudinal Direction:

Reinforcement Calculations:

Min. Code Req'd Reinf. (Shrink./Temp. (ACI-10.5.4)): $A_s(2) = 0.52$ in2
 Controlling Reinforcing Steel: $A_{s-reqd} = 0.52$ in2
 Selected Reinforcement: Longitudinal: (2) Cont. #5 Bars
 Reinforcement Area Provided: $A_s = 0.61$ in2

NOTES

LOADING DIAGRAM



FOOTING LOADING

Live Load: $PL = 510$ lb
 Dead Load: $PD = 900$ lb
 Total Load: $PT = 1610$ lb
 Ultimate Factored Load: $P_u = 2136$ lb

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PROJECT

Beaver County
Beaver Animal Shelter
Beaver, Utah

DATE

May, 11

SHEET

11

DESIGNED BY

A B S

PROJECT NO.

11294**LATERAL LOADING****Seismic Loading****Seismic Analysis 2009 IBC/ ASCE 7-05**

Zip

84713

Occupancy

I

IBC 1604.5

 $I_e =$ **1.00**

ASCE 7-05 Table 11.5-1

 $R =$ **5**

Response Modification Coefficient ASCE 7-05 Table 12.2-1

Site Class:

D

IBC 1613.5.2 "D" Default Value

 $S_s =$ **0.761** $S_1 =$ **0.236** $F_a =$ **1.21**

IBC 1613.5.3(1)

 $F_v =$ **1.96**

IBC 1613.5.3(2)

 $C_T =$ **0.02**

Building period coeff per ASCE 7-05 Table 12.8-2

 $x =$ **0.75**

Building period coeff per ASCE 7-05 Table 12.8-2

 $h_n =$ **10**

Height of building (ft) as per ASCE 7-05 12.8.2.1

 $S_{MS} =$ **0.92**

ASCE 7-05 EQ 11.4-1

 $S_{M1} =$ **0.46**

ASCE 7-05 EQ 11.4-2

 $S_{DS} =$ **0.61**

ASCE 7-05 EQ 11.4-3

 $S_{D1} =$ **0.31**

ASCE 7-05 EQ 11.4-4

 $T_a =$ **0.11**


ASCE 7-05 EQ 12.8-7

SDC =

D

Seismic Design Category per IBC Table 1613.5.6(1) and 1613.5.6(2)

 $C_s =$ **0.123** ASCE 7-05 EQ 12.8-2 ($C_s = S_{DS}/(R/I)$) $C_s =$ **0.548** ASCE 7-05 EQ 12.8-3 ($C_s = S_{D1}/T^*(R/I)$) $C_s =$ **0.010** ASCE 7-05 EQ 12.8-5**Base Shear Coefficient** $C_s =$ **0.123** Ultimate $C_s =$ **0.086** Service

| | | | |
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| SHEET 12 | DATE May, 11 | PROJECT Beaver County Beaver Animal Shelter Beaver, Utah | |
| PROJECT NO. 11294 | DESIGNED BY A B S | | |

Wind Loading

Wind Loads ASCE-7 05 Method 1

Design Criteria:

Wind Speed=

Exposure=

Adjustment Factor=

(λ)

Importance Factor=

(I_w)

Edge Zone Calculations:

Least Dimension (ft)=

Total Building Height (ft)=

Height (ft)=

Length Transverse (ft)=

Length Longitudinal (ft)=

Pitch=

| |
|------|
| 90 |
| C |
| 1.21 |
| |
| 1.00 |

mph

| Roof | Floor | 10% Least dimension (ft)= |
|------|-------|---------------------------|
| 30 | 1 | 40% Eave Height (ft)= |
| 15 | 1 | |
| 10 | 1 | |
| 30 | 1 | |
| 69 | 1 | 4% Least dimension (ft)= |
| 4 | 12 | at least 3 ft |

a=

a=

| Roof | Floor |
|------|-------|
| 3 | 0.1 |
| 4 | 0.1 |
| | |
| 3.00 | 0.10 |
| 1.20 | 0.10 |
| 3.00 | 3.00 |
| 3.00 | 3.00 |

| | Ps30 (psf) | Ps (psf) |
|----------------------|---------------|-------------|
| A | 17.8 | 21.5 |
| (Edge Zone Wall) | | |
| B | 0 | 0.0 |
| (Edge Zone Roof) | | |
| C | 11.9 | 14.4 |
| (Interior Zone Wall) | | |
| D | 0 | 0.0 |
| (Interior Zone Roof) | | |

Weighted average:

| Transverse | Roof | Floor | |
|--------------|------|-------|-----|
| Ps(wall)= | 15.8 | 57.2 | psf |
| Ps(roof)= | 0.0 | 0.0 | psf |
| Longitudinal | | | |
| Ps(wall)= | 15.0 | 57.2 | psf |
| Ps(roof)= | 0.0 | 0.0 | psf |

| | Roof | | | | Floor | | | |
|------------------|------------|------------|--------------|--------------|------------|------------|--------------|--------------|
| Wind Force | vt (lb/ft) | vl (lb/ft) | vtmin(lb/ft) | vlmin(lb/ft) | vt (lb/ft) | vl (lb/ft) | vtmin(lb/ft) | vlmin(lb/ft) |
| ROOF | 0 | 0 | 690 | 300 | 0 | 0 | 0 | 0 |
| WALL | 1036 | 475 | 690 | 300 | 57 | 57 | 10 | 10 |
| TOTALS | 1036 | 475 | 1380 | 600 | 57 | 57 | 10 | 10 |
| | Roof | | Floor | | | | | |
| Governing forces | vt(lb/ft) | vl(lb/ft) | vt(lb/ft) | vl(lb/ft) | | | | |
| | 690 | 300 | 148 | 130 | | | | |
| | 690 | 300 | 57 | 57 | | | | |

| | Trib. Height (ft) | Roof Vt (lb) | Roof Vl (lb) | Trib. Height (ft) | Floor Vt (lb) | Floor Vl (lb) |
|------------------|----------------------|-----------------|-----------------|----------------------|------------------|------------------|
| Diaphragm Forces | | | | | | |
| Roof | 3 | 7,590 | 3,300 | 0 | 0 | 0 |
| Wall | 8 | | | 0 | | |

**McNEIL ENGINEERING STRUCTURAL, L.C.****A PART OF MCNEIL GROUP**

1664 South Dixie Drive, Suit D-104 • ST. GEORGE, UTAH 84770
(435) 673-5127 • FAX (435) 673-6090

CIVIL, STRUCTURAL ENGINEERING & LAND SURVEYING
PAVEMENT & ROOF CONSULTING

PROJECT

Beaver County
Beaver Animal Shelter
Beaver, Utah

DATE

May, 11

SHEET

13

DESIGNED BY

A B S

PROJECT NO.

11294**Diaphragm Forces**


| Diaphragm | Area (ft ²) | Wall Area (ft ²) | Roof/Floor | Wall | Mech Units (lbs) | Weight (lbf) | Height (ft) |
|-----------|--------------------------------|--|---|-----------------|---------------------|--------------|-------------|
| | | | Dead Load (psf) | Dead Load (psf) | | | |
| R | 2251 | 1000 | 15 | 58 | 0 | 91765 | 10 |
| 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| W= | | | | | | 91765 | |
| Cs= | 0.122774667 | V=C _s *W= | 11266 lbf | | | | |
| Diaphragm | h _x *w _x | h _x *w _x /SUM(w _x *h _x) | F _x =C _v *V (lbf) | | | | |
| R | 917650 | 1.00 | 11266.42 | | | | |
| 3 | 0 | 0.00 | 0.00 | | | | |
| 2 | 0 | 0.00 | 0.00 | | | | |
| Sum= | 917650 | 1.00 | 11266 | | | | |

Seismic Forces are shown at service level (E*0.7)

| | | |
|-----------|-------------------------------|---------------|
| 1605.3.1 | | |
| Diaphragm | (F _x /1.4)* ρ | ρ = 1.30 |
| R | 10252 | |
| 2 | 0 | |
| 0 | 0 | |
| TOTAL | 10252 | |

Wind Forces are shown at service level (1.0*W)

| | | | | | |
|----------------------|----------------------|-------------------------|------------------------|----------------------|-------------------------|
| 1605.3.1 | | | | | |
| Transverse Direction | | | Longitudinal Direction | | |
| Diaphragm | V _t (lbf) | V _t (lbf/ft) | Diaphragm | V _l (lbf) | V _l (lbf/ft) |
| R | 7,590 | 110 | R | 3,300 | 110 |
| 2 | 0 | 0 | 2 | 0 | 0 |

| | | | |
|--|-----------------------------|--|---|
| CIVIL, STRUCTURAL ENGINEERING & LAND SURVEYING PAVEMENT & ROOF CONSULTING | | McNEIL ENGINEERING STRUCTURAL, L.C. A PART OF MCNEIL GROUP 1664 South Dixie Drive, Suite D-104 • ST. GEORGE, UTAH 84770 (435) 673-5127 • FAX (435) 673-6090 |  |
| SHEET 14 | DATE May, 11 | PROJECT Beaver County Beaver Animal Shelter Beaver, Utah | |
| PROJECT NO. 11294 | DESIGNED BY A B S | | |

Out of Plane, Anchorage Calculations, and Diaphragm Calculations

SEISMIC DESIGN

WALL OUT OF PLANE

$$S_{DS} = 0.61 \quad I = 1.0$$

$$F_p = 0.4(0.61)(1.0)(58 \text{ psf}) = 14.2 \text{ psf}$$

$$0.7 F_p = 0.7(14.2 \text{ psf}) = 9.94$$

$$W = 21.5 \text{ psf} > 9.94 \quad \text{WIND CONTROLS}$$

WALL ANCHORAGE

$$F_p = 14.2 (5') = 71 \text{ plf}$$

$$F_p = 400(0.61)(1.0) = 244 \text{ plf}$$

$$F_p = 280 \text{ plf} \leftarrow \text{CONTROLS}$$

$$F_p = 0.80(0.61)(1.0)(58 \text{ psf})(5') = 142 \text{ plf}$$

ANCHOR WALL EUPNY 2'-0"

$$0.7(280 \text{ plf})(2'-0") = 392 \text{ lbs}$$

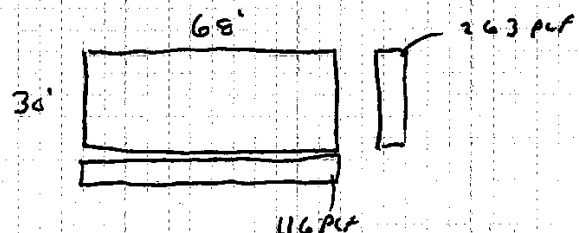
$$\text{USE SIMPSON A34 GOOD FOR } 515 \text{ lbs} > 392 \text{ lbs OKAY}$$

DIAPHRAGM DESIGN

$$V = 10252 \text{ lbs} \quad \text{W/E}$$

$$W_x = \frac{10252 \text{ lbs}}{1.3(36')} = 263 \text{ plf}$$

$$W_y = \frac{10252 \text{ lbs}}{1.3(68')} = 116 \text{ plf}$$



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PROJECT NO.

11294DIAPHRAGM DESIGN (Cont.)

$$V = \frac{16252 \text{ lb}_s}{1.3} = 7886 \text{ lb}_s$$

$$v_s = \frac{7886 \text{ lb}_s}{2 \times 30'} = 131 \text{ plf}$$

USE 5/8" SHEATHING W/ 8D NAILS AT 6" O.C.
PERIMETER AND 12" O.C. FIELD. S.F. = 215 PLF OKAYCHORD STEEL

$$M = \frac{(263 \text{ plf})(30')^2}{8} = 29587.5 \text{ lb}_s\text{-ft} \quad T = \frac{29587.5 \text{ lb}_s\text{-ft}}{68'} = 435 \text{ lb}_s$$

$$M = \frac{(116 \text{ plf})(68')^2}{8} = 67048 \text{ lb}_s\text{-ft} \quad T = \frac{67048 \text{ lb}_s\text{-ft}}{30'} = 2235 \text{ lb}_s$$

$$A_s = \frac{2235 \text{ lb}_s}{24000 \text{ psi}} = 0.09 \text{ in}^2 \quad \text{USE (2) \#5} \quad A_s = 0.62 \text{ OKAY}$$


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(435) 673-5127 • FAX (435) 673-6090



SHEET

16

DATE

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PROJECT

Beaver County
Beaver Animal Shelter
Beaver, Utah

PROJECT NO.

11294

DESIGNED BY

A B S

Masonry Wall Design For In-plane Shear

NOTE: WORST CASE WALL
LINES WERE CHECKED AS
FOLLOWS:
FRONT WALL BECAUSE IT HAS
THE MOST OPENINGS
GARAGE SIDE WALL BECAUSE
IT HAS THE LARGEST
OPENING.

Masonry Shear Wall Design

Mark Front Wall

f'm = 1500 psi

Fs = 24000 psi

n = 25.3 modular ratio



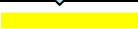






Inspection = 1 (I = inspected, N = non-inspected)



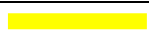





V lateral = 5.2 kip total seismic wind shear at top of wall

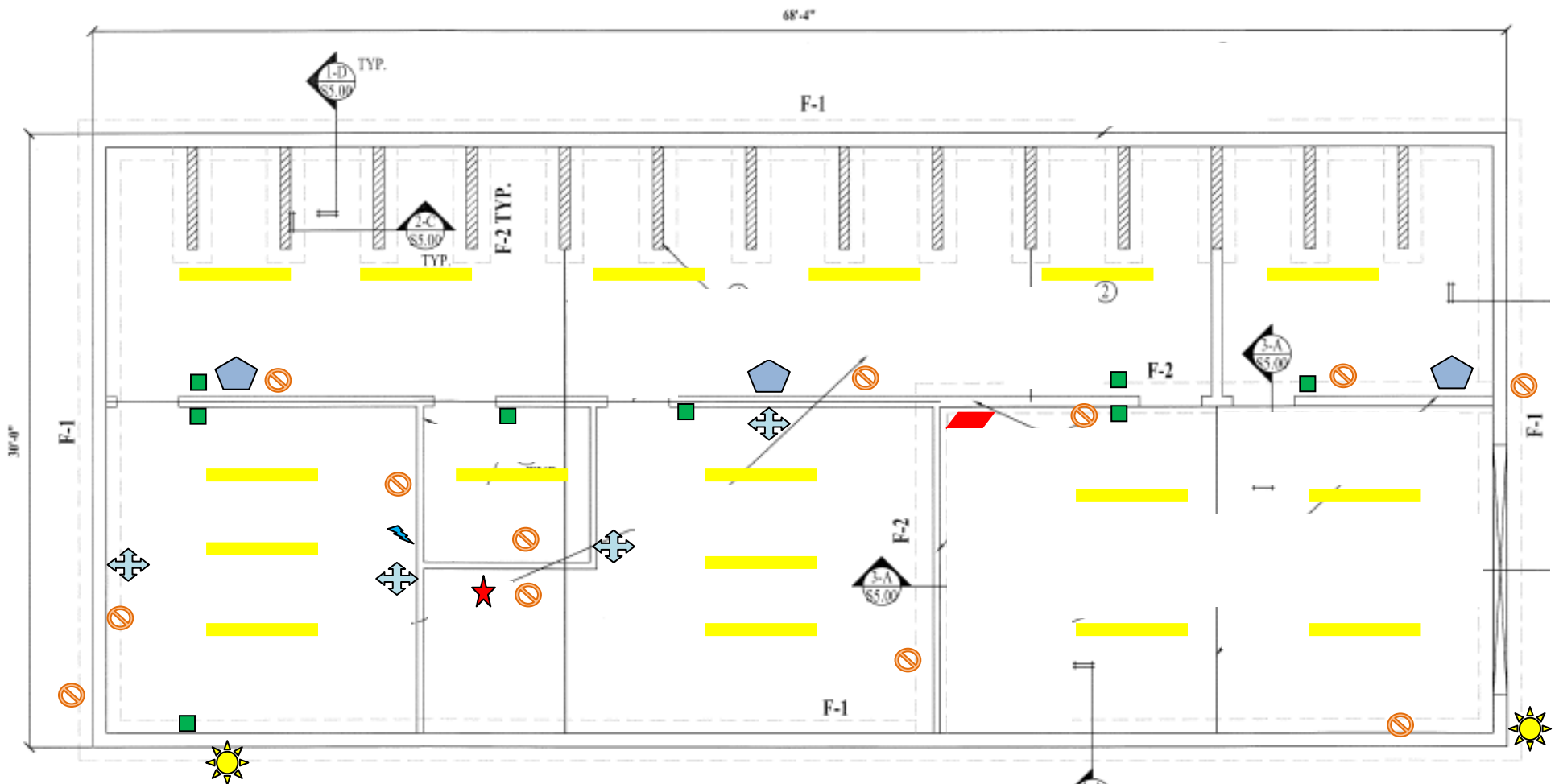
Reinforcement to take shear load?

N











| Pier | n | h (ft.) | EST (kip) | 1 (in.) | 2 (in.) | 3 (in.) | 4 (in.) | 5 (in.) | 6 (in.) | 7 (in.) | 8 (in.) | 9 (in.) | 10 (in.) | 11 (in.) | 12 (in.) | 13 (in.) | 14 (in.) | 15 (in.) | 16 (in.) | 17 (in.) | 18 (in.) | 19 (in.) | 20 (in.) | 21 (in.) | 22 (in.) | 23 (in.) | 24 (in.) | 25 (in.) | 26 (in.) | 27 (in.) | 28 (in.) | 29 (in.) | 30 (in.) | 31 (in.) | 32 (in.) | 33 (in.) | 34 (in.) | 35 (in.) | 36 (in.) | 37 (in.) | 38 (in.) | 39 (in.) | 40 (in.) | 41 (in.) | 42 (in.) | 43 (in.) | 44 (in.) | 45 (in.) | 46 (in.) | 47 (in.) | 48 (in.) | 49 (in.) | 50 (in.) | 51 (in.) | 52 (in.) | 53 (in.) | 54 (in.) | 55 (in.) | 56 (in.) | 57 (in.) | 58 (in.) | 59 (in.) | 60 (in.) | 61 (in.) | 62 (in.) | 63 (in.) | 64 (in.) | 65 (in.) | 66 (in.) | 67 (in.) | 68 (in.) | 69 (in.) | 70 (in.) | 71 (in.) | 72 (in.) | 73 (in.) | 74 (in.) | 75 (in.) | 76 (in.) | 77 (in.) | 78 (in.) | 79 (in.) | 80 (in.) | 81 (in.) | 82 (in.) | 83 (in.) | 84 (in.) | 85 (in.) | 86 (in.) | 87 (in.) | 88 (in.) | 89 (in.) | 90 (in.) | 91 (in.) | 92 (in.) | 93 (in.) | 94 (in.) | 95 (in.) | 96 (in.) | 97 (in.) | 98 (in.) | 99 (in.) | 100 (in.) | 101 (in.) | 102 (in.) | 103 (in.) | 104 (in.) | 105 (in.) | 106 (in.) | 107 (in.) | 108 (in.) | 109 (in.) | 110 (in.) | 111 (in.) | 112 (in.) | 113 (in.) | 114 (in.) | 115 (in.) | 116 (in.) | 117 (in.) | 118 (in.) | 119 (in.) | 120 (in.) | 121 (in.) | 122 (in.) | 123 (in.) | 124 (in.) | 125 (in.) | 126 (in.) | 127 (in.) | 128 (in.) | 129 (in.) | 130 (in.) | 131 (in.) | 132 (in.) | 133 (in.) | 134 (in.) | 135 (in.) | 136 (in.) | 137 (in.) | 138 (in.) | 139 (in.) | 140 (in.) | 141 (in.) | 142 (in.) | 143 (in.) | 144 (in.) | 145 (in.) | 146 (in.) | 147 (in.) | 148 (in.) | 149 (in.) | 150 (in.) | 151 (in.) | 152 (in.) | 153 (in.) | 154 (in.) | 155 (in.) | 156 (in.) | 157 (in.) | 158 (in.) | 159 (in.) | 160 (in.) | 161 (in.) | 162 (in.) | 163 (in.) | 164 (in.) | 165 (in.) | 166 (in.) | 167 (in.) | 168 (in.) | 169 (in.) | 170 (in.) | 171 (in.) | 172 (in.) | 173 (in.) | 174 (in.) | 175 (in.) | 176 (in.) | 177 (in.) | 178 (in.) | 179 (in.) | 180 (in.) | 181 (in.) | 182 (in.) | 183 (in.) | 184 (in.) | 185 (in.) | 186 (in.) | 187 (in.) | 188 (in.) | 189 (in.) | 190 (in.) | 191 (in.) | 192 (in.) | 193 (in.) | 194 (in.) | 195 (in.) | 196 (in.) | 197 (in.) | 198 (in.) | 199 (in.) | 200 (in.) | 201 (in.) | 202 (in.) | 203 (in.) | 204 (in.) | 205 (in.) | 206 (in.) | 207 (in.) | 208 (in.) | 209 (in.) | 210 (in.) | 211 (in.) | 212 (in.) | 213 (in.) | 214 (in.) | 215 (in.) | 216 (in.) | 217 (in.) | 218 (in.) | 219 (in.) | 220 (in.) | 221 (in.) | 222 (in.) | 223 (in.) | 224 (in.) | 225 (in.) | 226 (in.) | 227 (in.) | 228 (in.) | 229 (in.) | 230 (in.) | 231 (in.) | 232 (in.) | 233 (in.) | 234 (in.) | 235 (in.) | 236 (in.) | 237 (in.) | 238 (in.) | 239 (in.) | 240 (in.) | 241 (in.) | 242 (in.) | 243 (in.) | 244 (in.) | 245 (in.) | 246 (in.) | 247 (in.) | 248 (in.) | 249 (in.) | 250 (in.) | 251 (in.) | 252 (in.) | 253 (in.) | 254 (in.) | 255 (in.) | 256 (in.) | 257 (in.) | 258 (in.) | 259 (in.) | 260 (in.) | 261 (in.) | 262 (in.) | 263 (in.) | 264 (in.) | 265 (in.) | 266 (in.) | 267 (in.) | 268 (in.) | 269 (in.) | 270 (in.) | 271 (in.) | 272 (in.) | 273 (in.) | 274 (in.) | 275 (in.) | 276 (in.) | 277 (in.) | 278 (in.) | 279 (in.) | 280 (in.) | 281 (in.) | 282 (in.) | 283 (in.) | 284 (in.) | 285 (in.) | 286 (in.) | 287 (in.) | 288 (in.) | 289 (in.) | 290 (in.) | 291 (in.) | 292 (in.) | 293 (in.) | 294 (in.) | 295 (in.) | 296 (in.) | 297 (in.) | 298 (in.) | 299 (in.) | 300 (in.) | 301 (in.) | 302 (in.) | 303 (in.) | 304 (in.) | 305 (in.) | 306 (in.) | 307 (in.) | 308 (in.) | 309 (in.) | 310 (in.) | 311 (in.) | 312 (in.) | 313 (in.) | 314 (in.) | 315 (in.) | 316 (in.) | 317 (in.) | 318 (in.) | 319 (in.) | 320 (in.) | 321 (in.) | 322 (in.) | 323 (in.) | 324 (in.) | 325 (in.) | 326 (in.) | 327 (in.) | 328 (in.) | 329 (in.) | 330 (in.) | 331 (in.) | 332 (in.) | 333 (in.) | 334 (in.) | 335 (in.) | 336 (in.) | 337 (in.) | 338 (in.) | 339 (in.) | 340 (in.) | 341 (in.) | 342 (in.) | 343 (in.) | 344 (in.) | 345 (in.) | 346 (in.) | 347 (in.) | 348 (in.) | 349 (in.) | 350 (in.) | 351 (in.) | 352 (in.) | 353 (in.) | 354 (in.) | 355 (in.) | 356 (in.) | 357 (in.) | 358 (in.) | 359 (in.) | 360 (in.) | 361 (in.) | 362 (in.) | 363 (in.) | 364 (in.) | 365 (in.) | 366 (in.) | 367 (in.) | 368 (in.) | 369 (in.) | 370 (in.) | 371 (in.) | 372 (in.) | 373 (in.) | 374 (in.) | 375 (in.) | 376 (in.) | 377 (in.) | 378 (in.) | 379 (in.) | 380 (in.) | 381 (in.) | 382 (in.) | 383 (in.) | 384 (in.) | 385 (in.) | 386 (in.) | 387 (in.) | 388 (in.) | 389 (in.) | 390 (in.) | 391 (in.) | 392 (in.) | 393 (in.) | 394 (in.) | 395 (in.) | 396 (in.) | 397 (in.) | 398 (in.) | 399 (in.) | 400 (in.) | 401 (in.) | 402 (in.) | 403 (in.) | 404 (in.) | 405 (in.) | 406 (in.) | 407 (in.) | 408 (in.) | 409 (in.) | 410 (in.) | 411 (in.) | 412 (in.) | 413 (in.) | 414 (in.) | 415 (in.) | 416 (in.) | 417 (in.) | 418 (in.) | 419 (in.) | 420 (in.) | 421 (in.) | 422 (in.) | 423 (in.) | 424 (in.) | 425 (in.) | 426 (in.) | 427 (in.) | 428 (in.) | 429 (in.) | 430 (in.) | 431 (in.) | 432 (in.) | 433 (in.) | 434 (in.) | 435 (in.) | 436 (in.) | 437 (in.) | 438 (in.) | 439 (in.) | 440 (in.) | 441 (in.) | 442 (in.) | 443 (in.) | 444 (in.) | 445 (in.) | 446 (in.) | 447 (in.) | 448 (in.) | 449 (in.) | 450 (in.) | 451 (in.) | 452 (in.) | 453 (in.) | 454 (in.) | 455 (in.) | 456 (in.) | 457 (in.) | 458 (in.) | 459 (in.) | 460 (in.) | 461 (in.) | 462 (in.) | 463 (in.) | 464 (in.) | 465 (in.) | 466 (in.) | 467 (in.) | 468 (in.) | 469 (in.) | 470 (in.) | 471 (in.) | 472 (in.) | 473 (in.) | 474 (in.) | 475 (in.) | 476 (in.) | 477 (in.) | 478 (in.) | 479 (in.) | 480 (in.) | 481 (in.) | 482 (in.) | 483 (in.) | 484 (in.) | 485 (in.) | 486 (in.) | 487 (in.) | 488 (in.) | 489 (in.) | 490 (in.) | 491 (in.) | 492 (in.) | 493 (in.) | 494 (in.) | 495 (in.) | 496 (in.) | 497 (in.) | 498 (in.) | 499 (in.) | 500 (in.) | 501 (in.) | 502 (in.) | 503 (in.) | 504 (in.) | 505 (in.) | 506 (in.) | 507 (in.) | 508 (in.) | 509 (in.) | 510 (in.) | 511 (in.) | 512 (in.) | 513 (in.) | 514 (in.) | 515 (in.) | 516 (in.) | 517 (in.) | 518 (in.) | 519 (in.) | 520 (in.) | 521 (in.) | 522 (in.) | 523 (in.) | 524 (in.) | 525 (in.) | 526 (in.) | 527 (in.) | 528 (in.) | 529 (in.) | 530 (in.) | 531 (in.) | 532 (in.) | 533 (in.) | 534 (in.) | 535 (in.) | 536 (in.) | 537 (in.) | 538 (in.) | 539 (in.) | 540 (in.) | 541 (in.) | 542 (in.) | 543 (in.) | 544 (in.) | 545 (in.) | 546 (in.) | 547 (in.) | 548 (in.) | 549 (in.) | 550 (in.) | 551 (in.) | 552 (in.) | 553 (in.) | 554 (in.) | 555 (in.) | 556 (in.) | 557 (in.) | 558 (in.) | 559 (in.) | 560 (in.) | 561 (in.) | 562 (in.) | 563 (in.) | 564 (in.) | 565 (in.) | 566 (in.) | 567 (in.) | 568 (in.) | 569 (in.) | 570 (in.) | 571 (in.) | 572 (in.) | 573 (in.) | 574 (in.) | 575 (in.) | 576 (in.) | 577 (in.) | 578 (in.) | 579 (in.) | 580 (in.) | 581 (in.) | 582 (in.) | 583 (in.) | 584 (in.) | 585 (in.) | 586 (in.) | 587 (in.) | 588 (in.) | 589 (in.) | 590 (in.) | 591 (in.) | 592 (in.) | 593 (in.) | 594 (in.) | 595 (in.) | 596 (in.) | 597 (in.) | 598 (in.) | 599 (in.) | 600 (in.) | 601 (in.) | 602 (in.) | 603 (in.) | 604 (in.) | 605 (in.) | 606 (in.) | 607 (in.) | 608 (in.) | 609 (in.) | 610 (in.) | 611 (in.) | 612 (in.) | 613 (in.) | 614 (in.) | 615 (in.) | 616 (in.) | 617 (in.) | 618 (in.) | 619 (in.) | 620 (in.) | 621 (in.) | 622 (in.) | 623 (in.) | 624 (in.) | 625 (in.) | 626 (in.) | 627 (in.) | 628 (in.) | 629 (in.) | 630 (in.) | 631 (in.) | 632 (in.) | 633 (in.) | 634 (in.) | 635 (in.) | 636 (in.) | 637 (in.) | 638 (in.) | 639 (in.) | 640 (in.) | 641 (in.) | 642 (in.) | 643 (in.) | 644 (in.) | 645 (in.) | 646 (in.) | 647 (in.) | 648 (in.) | 649 (in.) | 650 (in.) | 651 (in.) | 652 (in.) | 653 (in.) | 654 (in.) | 655 (in.) | 656 (in.) | 657 (in.) | 658 (in.) | 659 (in.) | 660 (in.) | 661 (in.) | 662 (in.) | 663 (in.) | 664 (in.) | 665 (in.) | 666 (in.) | 667 (in.) | 668 (in.) | 669 (in.) | 670 (in.) | 671 (in.) | 672 (in.) | 673 (in.) | 674 (in.) | 675 (in.) | 676 (in.) | 677 (in.) | 678 (in.) | 679 (in.) | 680 (in.) | 681 (in.) | 682 (in.) | 683 (in.) | 684 (in.) | 685 (in.) | 686 (in.) | 687 (in.) | 688 (in.) | 689 (in.) | 690 (in.) | 691 (in.) | 692 (in.) | 693 (in.) | 694 (in.) | 695 (in.) | 696 (in.) | 697 (in.) | 698 (in.) | 699 (in.) | 700 (in.) | 701 (in.) | 702 (in.) | 703 (in.) | 704 (in.) | 705 (in.) | 706 (in.) | 707 (in.) | 708 (in.) | 709 (in.) | 710 (in.) | 711 (in.) | 712 (in.) | 713 (in.) | 714 (in.) | 715 (in.) | 716 (in.) | 717 (in.) | 718 (in.) | 719 (in.) | 720 (in.) | 721 (in.) | 722 (in.) | 723 (in.) | 724 (in.) | 725 (in.) | 726 (in.) | 727 (in.) | 728 (in.) | 729 (in.) | 730 (in.) | 731 (in.) | 732 (in.) | 733 (in.) | 734 (in.) | 735 (in.) | 736 (in.) | 737 (in.) | 738 (in.) | 739 (in.) | 740 (in.) | 741 (in.) | 742 (in.) | 743 (in.) | 744 (in.) | 745 (in.) | 746 (in.) | 747 (in.) | 748 (in.) | 749 (in.) | 750 (in.) | 751 (in.) | 752 (in.) | 753 (in.) | 754 (in.) | 755 (in.) | 756 (in.) | 757 (in.) | 758 (in.) | 759 (in.) | 760 (in.) | 761 (in.) | 762 (in.) | 763 (in.) | 764 (in.) | 765 (in.) | 766 (in.) | 767 (in.) | 768 (in.) | 769 (in.) | 770 (in.) | 771 (in.) | 772 (in.) | 773 (in.) | 774 (in.) | 775 (in.) | 776 (in.) | 777 (in.) | 778 (in.) | 779 (in.) | 780 (in.) | 781 (in.) | 782 (in.) | 783 (in.) | 784 (in.) | 785 (in.) | 786 (in.) | 787 (in.) | 788 (in.) | 789 (in.) | 790 (in.) | 791 (in.) | 792 (in.) | 793 (in.) | 794 (in.) | 795 (in.) | 796 (in.) | 797 (in.) | 798 (in.) | 799 (in.) | 800 (in.) | 801 (in.) | 802 (in.) | 803 (in.) | 804 (in.) | 805 (in.) | 806 (in.) | 807 (in.) | 808 (in.) | 809 (in.) | 810 (in.) | 811 (in.) | 812 (in.) | 813 (in.) | 814 (in.) | 815 (in.) | 816 (in.) | 817 (in.) | 818 (in.) | 819 (in.) | 820 (in.) | 821 (in.) | 822 (in.) | 823 (in.) | 824 (in.) | 825 (in.) | 826 (in.) | 827 (in.) | 828 (in.) | 829 (in.) | 830 (in.) | 831 (in.) | 832 (in.) | 833 (in.) | 834 (in.) | 835 (in.) | 836 (in.) | 837 (in.) | 838 (in.) | 839 (in.) | 840 (in.) | 841 (in.) | 842 (in.) | 843 (in.) | 844 (in.) | 845 (in.) | 846 (in.) | 847 (in.) | 848 (in.) | 849 (in.) | 850 (in.) | 851 (in.) | 852 (in.) | 853 (in.) | 854 (in.) | 855 (in.) | 856 (in.) | 857 (in.) | 858 (in.) | 859 (in.) | 860 (in.) | 861 (in.) | 862 (in.) | 863 (in.) | 864 (in.) | 865 (in.) | 866 (in.) | 867 (in.) | 868 (in.) | 869 (in.) | 870 (in.) | 871 (in.) | 872 (in.) | 873 (in.) | 874 (in.) | 875 (in.) | 876 (in.) | 877 (in.) | 878 (in.) | 879 (in.) | 880 (in.) | 881 (in.) | 882 (in.) | 883 (in.) | 884 (in.) | 885 (in.) | 886 (in.) | 887 (in.) | 888 (in.) | 889 (in.) | 890 (in.) | 891 (in.) | 892 (in.) | 893 (in.) | 894 (in.) | 895 (in.) | 896 (in.) | 897 (in.) | 898 (in.) | 899 (in.) | 900 (in.) | 901 (in.) | 902 (in.) | 903 (in.) | 904 (in.) | 905 (in.) | 906 (in.) | 907 (in.) | 908 (in.) | 909 (in.) | 910 (in.) | 911 (in.) | 912 (in.) | 913 (in.) | 914 (in.) | 915 (in.) | 916 (in.) | 917 (in.) | 918 (in.) | 919 (in.) | 920 (in.) | 921 (in.) | 922 (in.) | 923 (in.) | 924 (in.) | 925 (in.) | 926 (in.) | 927 (in.) | 928 (in.) | 929 (in.) | 930 (in.) | 931 (in.) | 932 (in.) | 933 (in.) | 934 (in.) | 935 (in.) | 936 (in.) | 937 (in.) | 938 (in.) | 939 (in.) | 940 (in.) | 941 (in.) | 942 (in.) | 943 (in.) | 944 (in.) | 945 (in.) | 946 (in.) | 947 (in.) | 948 (in.) | 949 (in.) | 950 (in.) | 951 (in.) | 952 (in.) | 953 (in.) | 954 (in.) | 955 (in.) | 956 (in.) | 957 (in.) | 958 (in.) | 959 (in.) | 960 (in.) | 961 (in.) | 962 (in.) | 963 (in.) | 964 (in.) | 965 (in.) | 966 (in.) | 967 (in.) | 968 (in.) | 969 (in.) | 970 (in.) | 971 (in.) | 972 (in.) | 973 (in.) | 974 (in.) | 975 (in.) | 976 (in.) | 977 (in.) | 978 (in.) | 979 (in.) | 980 (in.) | 981 (in.) | 982 (in.) | 983 (in.) | 984 (in.) | 985 (in.) | 986 (in.) | 987 (in.) | 988 (in.) | 989 (in.) | 990 (in.) | 991 (in.) | 992 (in.) | 993 (in.) | 994 (in.) | 995 (in.) | 996 (in.) | 997 (in.) | 998 (in.) | 999 (in.) | 1000 (in.) | 1001 (in.) | 1002 (in.) | 1003 (in.) | 1004 (in.) | 1005 (in.) | 1006 (in.) | 1007 (in.) | 1008 (in.) | 1009 (in.) | 1010 (in.) | 1011 (in.) | 1012 (in.) | 1013 (in.) | 1014 (in.) | 1015 (in.) | 1016 (in.) | 1017 (in.) | 1018 (in.) | 1019 (in.) | 1020 (in.) | 1021 (in.) | 1022 (in.) | 1023 (in.) | 1024 (in.) | 1025 (in.) | 1026 (in.) | 1027 (in.) | 1028 (in.) | 1029 (in.) | 1030 (in.) | 1031 (in.) | 1032 (in.) | 1033 (in.) | 1034 (in.) | 1035 (in.) | 1036 (in.) | 1037 (in.) | 1038 (in.) | 1039 (in.) | 1040 (in.) | 1041 (in.) | 1042 (in.) | 1043 (in.) | 1044 (in.) | 1045 (in.) | 1046 (in.) | 1047 (in.) | 1048 (in.) | 1049 (in.) | 1050 (in.) | 1051 (in.) | 1052 (in.) | 1053 (in.) | 1054 (in.) | 1055 (in.) | 1056 (in.) | 1057 (in.) | 1058 (in.) | 1059 (in.) | 1060 (in.) | 1061 (in.) | 1062 (in.) | 1063 (in.) | 1064 (in.) | 1065 (in.) | 1066 (in.) | 1067 (in.) | 1068 (in.) | 1069 (in.) | 1070 (in.) | 1071 (in.) | 1072 (in.) | 1073 (in.) | 1074 (in.) | 1075 (in.) | 1076 (in.) | 1077 (in.) | 1078 (in.) | 1079 (in.) | 1080 (in.) | 1081 (in.) | 1082 (in.) | 1083 (in.) | 1084 (in.) | 1085 (in.) | 1086 (in.) | 1087 (in.) | 1088 (in.) | 1089 (in.) | 1090 (in.) | 1091 (in.) | 1092 (in.) | 1093 (in.) | 1094 (in.) | 1095 (in.) | 1096 (in.) | 1097 (in.) | 1098 (in.) | 1099 (in.) | 1100 (in.) | 1101 (in.) | 1102 (in.) | 1103 (in.) | 1104 (in.) | 1105 (in.) | 1106 (in.) | 1107 (in.) | 1108 (in.) | 1109 (in.) | 1110 (in.) | 1111 (in.) | 1112 (in.) | 1113 (in.) | 1114 (in.) | 1115 (in.) | 1116 (in.) | 1117 (in.) | 1118 (in.) | 1119 (in.) | 1120 (in.) | 1121 (in.) | 1122 (|
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| | DESCRIPTION | QUANTITY |
|---|--|----------|
|  | Ceiling Mount Electrical 220 v Heater, Separate Circute each | 3 |
|  | Fan Powered Heater 100 v | 4 |
|  | Lights & Ballasts, Super t8's, 4 bulbs per ballast | 17 |
|  | Light Switch | 8 |
|  | Outlet, all outlets needed to be GFCI | 12 |
|  | Motion Lights, | 2 |
|  | Fuse Box | |
|  | 4" Dryer Outlet | |
|  | Phone Jack | |
| | Meterbase and outside weatherhead 200 amp | 1 |
| | Wire 10/2 with ground (furnace, dryer) | |
| | Wire 14/2 | |
| | Misc (wire nuts, covers etc.) | |

| LEGEND | |
|---|--|
|  | Ceiling Mount Heater |
|  | Fan Powered Heater |
|  | Lights & Ballasts, Super t8's, 4 bulbs per ballast |
|  | Light Switch |
|  | Outlet |
|  | Motion Lights, |
|  | Fuse Box |
|  | 4" Dryer Outlet |



PLUMBING PLANS

| | DESCRIPTION | QUANTITY |
|---|--|----------|
|  | MAIN WATER LINE | |
|  | SEWAGE LINE, 4" | |
|  | DRAINS, 4" (DRAINS IN KENNELS EXCLUDE DRAIN COVERS) | 21 |
|  | HOSE BIBS | 5 |
|  | FLOOR MOUNTED MOP SINK & SPIKET | 1 |
|  | SINK & Manual Faucet | 2 |
|  | FLOOR MOUNTED HANDICAP TOILET | 1 |
|  | Solids Interceptor w/ Flush Cover, Zurn Z1183-FC or equivalent | 1 |
|  | Washing Machine Drain | 1 |
|  | 50 gal. Water Heater | 1 |

| LEGEND | | | |
|---|---------------------------------|---|-----------------------|
|  | MAIN WATER LINE |  | Solids Interceptor |
|  | SEWAGE LINE, 4" |  | Washing Machine Drain |
|  | DRAINS, |  | Water Heater |
|  | HOSE BIBS | | |
|  | FLOOR MOUNTED MOP SINK & SPIKET | | |
|  | SINK | | |
|  | FLOOR MOUNTED TOILET | | |

